



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Rich Fogal and Michael B. Ball

Serial No.: 09/422,887

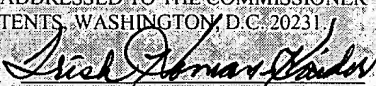
Filed: October 21, 1999

For: ANGULARLY OFFSET STACKED DIE  
MULTICHIP DEVICE AND METHOD OF  
MANUFACTURE

§ Group Art Unit: 2822  
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§ Examiner: J. L. Davis  
§  
§ Atty. Docket: 95-0134.05  
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Brief  
G. Stanley  
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APPLICANTS' BRIEF ON APPEAL

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## APPLICANTS' BRIEF ON APPEAL

### I. REAL PARTY IN INTEREST

The captioned Applicants, Rich Fogal and Michael B. Ball, have assigned their interest in this application to Micron Technology, Inc.

### II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to the Applicants, the Applicants' attorney, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### III. STATUS OF THE CLAIMS

Claims 1-17 have been presented during prosecution of the application under appeal.

Claims 1-6 were cancelled by the Preliminary Amendment.

Claims 7-17 are rejected.

Claims 7-17 are on appeal.

### IV. STATUS OF THE AMENDMENTS

Applicants filed no amendments subsequent to final rejection.

### V. SUMMARY

Exemplary embodiments of the claimed invention concern a method of stacking a plurality of dies, wherein each die is angularly offset with respect to the orientation of an underlying die. (Specification page 5, lines 21-22, and Figures 1 and 3.) Angular offsetting is accomplished by rotating a die within a plane that is parallel to the underlying die. (*Id.* at page 5,

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lines 23 and 24; page 4, lines 4-5.) The amount of rotation is described in terms of an angle between the longitudinal centerlines of one die and its underlying counterpart. (*Id.* at page 6, lines 1-3.) Moreover, the disclosure teaches that, in some embodiments, it is preferable to offset a die at an angle that is as small as possible without blocking access to the underlying die's bond pads. (*Id.* at page 5, lines 21-23; page 6, line 3.) A minimum angle is especially preferable if it is desired to stack the maximum number of dies while still ensuring clearance for the wire bonds leading to each die. (*Id.* at page 6, line 6 (designating the maximum number of dies as "N"; page 4, lines 6-8 (discussing ensuring that a lower die's bonding sites are not obstructed by an upper die); page 5, line 28 – page 6, line 1 (indicating that die are stacked without interfering with the vertical line of sight of lower dies' bonding pads).) In a preferred embodiment, wire bonding of all bonding sites occur during the same wire bonding process. (*Id.* at p. 5, ln 29 – p. 6, ln. 1.)

## VI. ISSUES

There are six issues for determination on appeal.

- (1) Whether claim 12 meets the "written description" requirement of 35 U.S.C. §112, ¶1.
- (2) Whether claims 13-17 meet the "definiteness" requirement of 35 U.S.C. §112, ¶2.
- (3) Whether claims 7 and 17 are novel under 35 U.S.C. §102 in light of Farnworth (U.S. Pat. No. 5,012,323).
- (4) Whether claims 7, 8, 12, and 17 are novel under 35 U.S.C. §102 in light of Sakurai (Japanese Pat. No. 57-31166).
- (5) Whether claims 7-8 and 12-17 are novel under 35 U.S.C. §102 in light of de Givry (European Patent No. 489,643); and
- (6) Whether claims 9-11 are non-obvious under 35 U.S.C. §103 in light of de Givry in combination with Sakurai.

## VII. GROUPING

Applicants define the following groups of claims for consideration upon this appeal. These groups correspond to the issues listed above.



Group I: Claim 12  
Group II: Claims 13-17  
Group III: Claims 7 and 17 (The claims of this group do not stand or fall together.)  
Group IV: Claims 7, 8, 12, and 17 (The claims of this group do not stand or fall together.)  
Group V: Claims 7-8 and 12-17 (The claims of this group do not stand or fall together.)  
Group VI: Claims 9-11

## VIII. ARGUMENT

### A. Claim 12 meets the “written description” requirement of §112, ¶1.

Claim 12 requires among its acts (1) stacking a plurality of dies (first addressed in the preamble); (2) establishing an orientation for each die of the plurality; and (3) with the orientation for each die, “marginally clearing a line of sight” to contact areas of any immediately underlying die. The Examiner rejected claim 12 under 35 U.S.C. §112, ¶1, arguing that the limitation “marginally clearing a line of sight” is not defined in the specification and is unclear.

However, the test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, *rather than the presence or absence of literal support in the specification for the claim language*. (*In re Kaslow*, 707 F.2d 1366, 217 U.S.P.Q. 1089, 1096 (Fed. Cir. 1983) (emphasis added).) The *Kaslow* case echoes the rule in *In re Edwards*, which states,

To comply with the description requirement it is not necessary that the application describe the claimed invention in *ipsis verbis* . . . .

(*Id.*, 568 F.2d 1349, 196 U.S.P.Q. 465, 467 (C.C.P.A. 1978).) Similarly, The court in *In re Herschler* stated,

The claimed subject matter need not be described in *haec verba* to satisfy the description requirement. It is not necessary that the application describe the claim limitations exactly . . . .

(*Id.*, 591 F.2d 693, 200 U.S.P.Q. 711, 717 (C.C.P.A. 1979) (citations omitted).) Accordingly, analogous language appears in the MANUAL OF PATENT EXAMINING PROCEDURE (MPEP),

The subject matter of the claim need not be described literally (i.e. using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement.

(*Id.* at 2163.02 (emphasis in original).) (The cited references are included in Appendix 2.)

Applicants contend that the terms in the limitation at issue – “marginally clearing a line of sight” -- are supported by the Specification given the standards cited above.

For instance, Applicants note that at least a portion of the limitation at issue actually appears verbatim in the Specification. Page 5, lines 28 through 29 specifically refers to stacking dies without interfering with the “line of sight” of lower dies’ bond pads.

As for the term “clearing,” Applicants contend that one of ordinary skill in the art would understand the term “clearing” to mean “removing obstructions” (*see* AMERICAN HERITAGE ELECTRONIC DICTIONARY (3d ed. 1993) (also in Appendix 2)). Applicants further contend that such an artisan would find support for that term in portions of the Specification such as the one cited above. Further support is found on page 5, lines 21 through 23, which describes ensuring that the upper die 28 does not interfere with access to bond pads.

Regarding the term “marginally,” Applicants contend that one of ordinary skill in the art would understand that term to be the adverb form of the term “marginal.” Further such an artisan would understand “marginal” to mean “barely within a lower standard” (*see* AMERICAN HERITAGE ELECTRONIC DICTIONARY). Moreover, an artisan would find support in portions of the Specification describing the notion of a minimum angular offset, such as page 6, line 3.

Thus, based on the standards set forth by case precedent and the PTO’s own procedural guidelines, the text cited in the Specification describes subject matter in such a way as to reasonably convey to one of ordinary skill in the art that the inventors had possession of the claimed invention. Accordingly, Applicants request that the Board withdraw this objection.

B. Claims 13-17 meet the “definiteness” requirement of §112, ¶2.

The Examiner rejected claim 13 and its dependent claims 14-16 for including the limitation “ensuring at most a minimum bond pad clearance” and rejected claim 17 based on the limitation requiring “less than a maximum underlying bond pad clearance.” The Examiner attempted to support the rejection by arguing that the claims are broad enough to include within their scope an embodiment that the Examiner does not believe is taught by the Specification. Specifically, the Examiner envisioned an embodiment wherein portion of the bond pad of an underlying chip is obstructed by the upper die. In other words, the Examiner has rejected these claims for lack of definiteness because the claims cover an embodiment that allegedly lacks enablement. In so doing, the Examiner has raised two issues that defeat the rejection.

First, case precedent has addressed the distinction between definiteness, a §112, ¶2 issue, and enablement, a §112, ¶1 issue:

definiteness and enablement are analytically distinct requirements, even though both concepts are contained in 35 U.S.C. §112. . . . Definiteness requires the language of the claim to set forth clearly the domain over which the applicant seeks exclusive rights. . . . The test for whether a claim meets the definiteness requirement is “whether one skilled in the art would understand the bounds of the claim when read in light of the specification.”

***Process Control Corp. v. HydReclaim Corp.***, 190 F.3d 1350, 52 U.S.P.Q.2d 1029, 1034 n.2 (Fed. Cir. 1999) (citations omitted), *cert. denied*, 529 U.S. 1037 (2000) (This and any other reference cited in part B of the argument are included in Appendix 3).

Because definiteness and enablement are analytically distinct, the Examiner’s enablement analysis cannot support the definiteness rejection. Rather, the Examiner must set forth an analysis addressing the distinct issue of definiteness under the standards cited above. Until then, the Examiner has failed to meet the *prima facie* burden for rejection. Moreover, Applicants assert that the Examiner cannot meet this burden, as the Examiner’s ability to articulate an embodiment indicates that the claims meet the definiteness requirement.

Second, assuming *arguendo* that the Examiner's analysis is proper, the Examiner's conclusion is still wrong, as case precedent supports a finding that the claims are adequately supported. In *In re Vickers* (141 F.2d 522, 61 U.S.P.Q. 122 (C.C.P.A. 1944)), the examiner of that application rejected claims because they covered a mechanical apparatus that was not disclosed in the specification. (*Id.* at 124, 127.) The Court indicated that such a rejection is not in accordance with the applicable rule, namely: it is not necessary to disclose each specific embodiment of the invention covered by the claims; rather, in a mechanical case, broad claims may be supported by disclosure of a single form of the apparatus disclosed in an application. (*Id.* at 127.)

The relevant facts of the current application are analogous to those in *Vickers*. As in that case, the Examiner has argued that the appealed claims cover matters that are not addressed in the specification. As a result, Applicants contend that the rule in *Vickers* would apply to the mechanics of claim 13's stacking chips and claim 17's arranging dies. Accordingly, the Examiner's rejection is as inappropriate here as it was in *Vickers*.

#### C. Claims 7 and 17 are novel in light of Farnworth.

The Examiner rejected claims 7 and 17 as being anticipated by Farnworth (U.S. Patent No. 5,012,323). Applicants contend that there are flaws in the Examiner's argument and undisclosed limitations in the claims that warrant withdrawing the rejections. Although the Examiner cited the same reference against these two claims, the Examiner raised different arguments against them which, in turn, warrant different counter-arguments from Applicants. Hence, these claims do not stand or fall together.

##### i. Claim 7

In rejecting claim 7, the Examiner assumed that Farnworth teaches claim 7's first limitation: mounting an upper die *on* a lower die. Farnworth, however, teaches just the opposite. Rather than mounting an upper die on a lower die, Farnworth teaches mounting its upper die 41 on a lead frame (Farnworth at col. 3, ln. 60; col. 4, ln. 4-6, ln. 47-49; col. 6, ln. 9-17 (claim 1); Figs. 4-7.) Farnworth further teaches that the lower die is *distal* from the upper die, being

located on the opposite side of the lead frame. (*Id.* at col. 4, ln. 36-38; Figs. 4-7.) Given Farnworth's opposing teachings in relation to claim 7's act of mounting, Farnworth cannot be read as disclosing this limitation.

Claim 7 further requires "defining a minimum angular offset *with said mounting*." (Emphasis added.) Because (1) Farnworth fails to disclose claim 7's mounting act; and (2) claim 7's defining act relies on that mounting act, then Farnworth necessarily fails to disclose claim's defining act as well.

Moreover, limitations concerning the defining act raise other issues. Applicants assert that Farnworth fails to define any angular offset, let alone a minimum angular offset. The Examiner contends that, with Farnworth's upper die being smaller than the lower die, an angular offset is defined between the edges of the upper and lower dies. First, Applicants note that the edges of Farnworth's upper and lower dies are parallel to each other and therefore could not define an angle. Thus, Applicants assert that the Examiner's failure to identify in Farnworth the angle for the angular offset and/or the axes defining that angle represent a failure to meet the *prima facie* burden for rejecting this claim.

Concerning the limitation of a "minimum" angular offset, the Examiner assumed that the only defining feature of such an offset is that it allows access to a bonding site on the lower die. Applicants contend that additional definition for a minimum angular offset can be found in the Specification (see citations in the Summary – section V – of this Appeal Brief) and that it was legally improper for the Examiner to ignore that source in attempting to reject the claims. This is a further indication of the Examiner's failure to meet the *prima facie* burden for rejecting claim 7. Accordingly, Applicants request that the Board withdraw the rejection against claim 7.

## ii. Claim 17

As for claim 17, the first act listed requires "serially stacking" all of the relevant dies. Applicants contend that Farnworth's emphasis on placing one die on the top of a lead frame and a second die on the bottom of the lead frame fails to meet claim 17's "serial stacking" requirement, as defined in the Specification. (*See, e.g.*, Specification at p. 5. ln. 9-20.)

Claim 17 additionally requires establishing a unique orientation for each die. The Examiner argued that the different vertical positions of Farnworth's upper and lower die satisfy

claim 17's "unique orientation" requirement. Claim 17, however, requires that the unique orientation must define a bond pad clearance. Farnworth's differing vertical positions do not define a bond pad clearance. Rather, it is the sizing of Farnworth's dies that arguably define bond pad clearance. This is evident when one considers that, if the upper die were the same size as or bigger than the lower die, the fact that the dies were at their different vertical positions would be insufficient in terms of bond pad clearance. This is indicated by Farnworth's repeated requirement that the dies be of different size. (*See, e.g.*, Farnworth at col. 4, ln. 2 (requiring that the lower die be larger than the upper die); ln. 54-58 (requiring that the upper die span only the distance between the wire bonding zones, while the lower die extend into those zones); col. 5, ln. 49 (claiming a second die that is smaller than a first die); Fig. 4; Fig. 5; Fig. 6; Fig. 7.) Thus, because the vertical positions do not satisfy the features required by claim 17 of a "unique orientation," such positioning does not disclose this limitation.

Moreover, claim 17 requires that the unique orientation define "less than a maximum" bond pad clearance. The Examiner's 112 rejection and response to Applicants' prior arguments indicate that the Examiner has failed to properly appreciate the distinction offered by that phrase. Given the arguments in part VIII(B) supporting the use of that phrase, the Examiner's disregarding that phrase results in a failure to meet the *prima facie* burden for rejection. For any or all of these reasons, Applicants request that the Board withdraw the rejection against claim 17.

#### D. Claims 7, 8, 12, and 17 are novel in light of Sakurai

The Examiner rejected claims 7, 8, 12, and 17 as being anticipated by Sakurai (Japanese Patent No. 57-31166). Applicants contend that there are flaws in the Examiner's argument and undisclosed limitations in the claims that warrant withdrawing the rejections. Although the Examiner cited the same reference against these claims, the Examiner raised different arguments against them which, in turn, warrant different counter-arguments from Applicants. Hence, the claims do not stand or fall together.

i. Claims 7-8

In rejecting claim 7 the Examiner cited the example in Sakurai's *figure 1* as disclosing the limitation of "mounting an upper die on a lower die" yet cited the Sakurai's *figure 2* as disclosing the limitation of "defining a minimum angular offset with said mounting." (Office Action of 11/16/00 at p. 4, ¶2.) Unfortunately for the Examiner, Sakurai's *figure 2* discloses a different and contradictory mounting scheme in comparison to that of Sakurai's *figure 1*. The mounting in Sakurai's *figure 1* accommodates a plurality of dies of differing size that results in exposing the entire perimeter for each die and is tailored for dies having bonding pads all around that perimeter. (Translation of Sakurai at p. 3, fourth full ¶.) The mounting in Sakurai's *figure 2*, on the other hand, accommodates a plurality of dies of the same size that results in exposing at most a portion of the perimeter of each die. Further, *Figure 2's* mounting scheme is specifically tailored for dies having bonding pads on abutting edges of each die. (*Id.* at p. 4, first two full ¶'s.) Thus, claim 7 requires the same mounting scheme for both acts, while the Examiner has cited different and contradictory mounting schemes in attempt to find claim 7 anticipated. Such a flaw indicates a failure to meet the *prima facie* burden for rejection of this claim and dependent claim 8. Moreover, the Examiner's attempt to combine features from multiple contradictory embodiments calls into question the propriety of using Sakiurai as the basis for any novelty rejection.

Further, the Examiner made errors in applying Sakurai against claim 7 that are similar to the errors that the Examiner made in applying Farnworth. Namely, the Examiner concluded that Sakurai's mounting discloses claim 7's "minimum angular offset." Regardless of which of the contradictory mounting schemes of Sakurai the Examiner relied upon, the Examiner failed to identify in Sakurai the angle for the angular offset and the axes defining that angle. Applicants assert that meeting the *prima facie* burden of rejection required doing so.

Moreover, concerning the additional limitation of a "minimum" angular offset, the Examiner again assumed that the only defining feature of such an offset is that it allows access to a bonding site on the lower die. Applicants contend that additional definition for a minimum angular offset can be found in the specification and that it was legally improper for the Examiner to ignore that source in attempting to reject the claims. This is a further indication of the

Examiner's failure to meet the *prima facie* burden for rejecting claim 7 and dependent claim 8. Accordingly, Applicants request that the Board withdraw the rejection against these claims.

### ii. Claim 12

As for claim 12, it requires, among other acts, establishing an orientation for each die of a plurality of dies (first addressed in the preamble), and *marginally* clearing a line of sight to contact areas of any immediately underlying die *with* the orientation for each die. First, the Examiner's 112 rejection and response to Applicants' prior arguments indicate that the Examiner has failed to properly appreciate the distinction offered by the term "marginally." Given the arguments in part VIII(A) supporting the use of that term, the Examiner's disregarding that term results in a failure to meet the *prima facie* burden for rejection. Second, assuming *arguendo* that Sakurai's figure 1 (the example specifically cited by the Examiner against this claim) teaches marginally clearing a line of sight, it is not the orientation for each of Sakurai's figure 1 dies that accomplishes that act. Rather, it is the sizing of the dies that may accomplish that. Thus, the portions of Sakurai cited by the Examiner fails to anticipate claim 12.

### iii. Claim 17

Concerning claim 17, it requires establishing a unique orientation for each die of all dies mentioned previously in the claim, wherein the orientation for each die defines "less than a maximum underlying bond pad clearance." First, it is noteworthy that the orientation that is being established is the same one that defines the bond pad clearance. However, the Examiner again attempted to combine the one orientation scheme from Sakurai's figure 1 with a different and contradictory orientation scheme in Sakurai's figure 2 to find these limitations anticipated. (Office Action of 11/16/00 at p.4, ¶5.) Thus, for the reasons supporting claims 7-8 addressed in part VIII(D)(i) ¶1 above, the Examiner's attempt to combine these contradictory embodiments results in a failure to meet the *prima facie* burden and calls into question the propriety of combining contradictory Sakurai embodiments in a novelty rejection.

Second, the Examiner's 112 rejection and response to Applicants' prior arguments indicate that the Examiner has failed to properly appreciate the distinction offered by the phrase



“less than a maximum underlying bond pad clearance.” Given the arguments in part VIII(B) supporting the use of that phrase, the Examiner’s disregarding that phrase results illustrates another aspect in which the Examiner has failed to meet the *prima facie* burden for rejection.

E. Claims 7-8 and 12-17 are novel in light of de Givry.

The Examiner rejected claims 7-8 and 12-17 as being anticipated by de Givry (European Patent No. 489,643). Applicants contend that there are flaws in the Examiner’s argument and claim limitations undisclosed by prior art that warrant withdrawing the rejections. Although the Examiner cited the same reference against these claims, the Examiner raised different arguments against them which, in turn, warrant different counter-arguments from Applicants. Hence, the claims do not stand or fall together.

i. Claims 7-8

Claim 7, for example, requires defining a *minimum* angular offset with an act of mounting an upper die on a lower die. Dependent claim 8 incorporates this limitation as well. As with previous rejections of claim 7, the Examiner has made an erroneous assumption that the only defining feature of such an offset is that it allows access to a bonding site on the lower die. Proof of this error is established by the fact that additional definition for a minimum angular offset can be found in the current Specification. (See also the Summary in section V of this Appeal Brief.) Applicants contend that it was legally improper for the Examiner to ignore that source in attempting to reject the claims.

Moreover, the Examiner has ignored the fact that de Givry teaches only a *maximum* angular offset with its mounting. Significantly, when de Givry teaches crossing only two chips, it teaches crossing them at the maximum angle – 90 degrees. (de Givry at Fig. 1.) Unlike the current Specification, there is no mention in de Givry that any illustrations showing such an angular offset are merely for purposes of clarity. (Compare de Givry specification with the current Specification at p. 7, ln. 8.) Further, the only time de Givry mentions a lesser angular offset is when more than two chips are being crossed, and such an angle still achieves the maximum offset for that number of crossed chips. (de Givry translation at p. 4, ln. 18-19 and p.

7, ln. 18-19 (teaching crossing three chips 60 degrees); *see also Id.* at p. 7, ln. 19-20 and Fig. 3 (teaching four chips in a “star” formation).) In addition, in some de Givry embodiments, the angle is not decreased even then. (de Givry at Fig. 2; translation at p. 6, ln. 23-29.) Thus, in teaching the exact opposite of the relevant limitation in claim 7 and 8, de Givry necessarily fails to disclose that limitation. As a result, not only has the Examiner failed to establish a *prima facie* case for rejection using de Givry, Applicants assert that such a case could not be established using de Givry. Accordingly, Applicants request that the Board withdraw the rejection against claims 7 and 8.

#### ii. Claim 12

As mentioned in section VIII(D)(ii), claim 12 requires, among other acts, establishing an orientation for each die of a plurality of dies (first addressed in the preamble), and *marginally* clearing a line of sight to contact areas of any immediately underlying die. The Examiner’s 112 rejection and response to Applicants’ prior arguments indicate that the Examiner has failed to properly appreciate the distinction offered by the term “marginally.” Given the arguments in part VIII(A) supporting the use of that term, the Examiner’s disregarding that term results in a failure to meet the *prima facie* burden for rejection. Second, assuming *arguendo* that de Givry teaches clearing a line of sight, there is nothing marginal about it. Rather, de Givry should be interpreted as teaching clearing a line of sight to the maximum extent possible. The reasons supporting this interpretation are addressed immediately above in part VIII(E)(i).

#### iii. Claims 13-16

Claim 13 requires “ensuring at most a minimum bond pad clearance to each chip” of a plurality of chips that were first mentioned in the claim’s preamble. Dependent claims 14-16 incorporate this limitation. The Examiner’s 112 rejection and response to Applicants’ prior arguments indicate that the Examiner has failed to properly appreciate the distinction offered by claim 13’s act of ensuring. Given the arguments in part VIII(B) supporting the phrasing in that act, the Examiner’s disregarding such phrasing results in a failure to meet the *prima facie* burden for rejection. Further, for the reasons discussed in part VIII(E)(i), de Givry can only be

interpreted as ensuring a maximum bond pad clearance for each chip. Because de Givry teaches the exact opposite of the limitation in claims 13-16, a novelty rejection based on this reference is untenable.

#### iv. Claim 17

As mentioned in the other rejections of claim 17, that claim requires that the unique orientation define “less than a maximum” bond pad clearance. The Examiner’s 112 rejection and response to Applicants’ prior arguments indicate that the Examiner has failed to properly appreciate the distinction offered by that phrase. Given the arguments in part VIII(B) supporting the use of that phrase, the Examiner’s disregarding that phrase results in a failure to meet the *prima facie* burden for rejection. Further, for the reasons discussed in part VIII(E)(i), de Givry can only be interpreted as ensuring no less than a maximum bond pad clearance. Because de Givry teaches the exact opposite of the limitation in claim 17, Applicants assert that it cannot be used in an novelty rejection of this claim.

#### F. Claims 9-11 are non-obvious in light of de Givry combined with Sakurai.

The Examiner rejected claims 9-11 as being obvious in light of de Givry in combination with Sakurai. Applicants contend that the Examiner misinterpreted de Givry in at least one instance and that a proper reading of that reference shows that it conflicts with Sakurai on the very point that the Examiner sought to make. In addition, there are other conflicts throughout the references that further discourage their combination.

Claim 9 requires, in part, an act of ensuring that a step of stacking all of the relevant dies occurs with no intervening bonding step; claim 10 states that its step of stacking comprises stacking all of the relevant dies before its step of bonding wire to those dies; and claim 11 states that its step of bonding comprises bonding all of the relevant wire only after the step of stacking all of the relevant dies. In rejecting these claims, the Examiner stated that de Givry does not teach that a bonding step is performed after all of the relevant dies have been stacked. The Examiner filled this perceived gap in de Givry’s disclosure with the teachings interpreted from Sakurai. The Examiner further suggested that there is a motivation in the art to reduce number of

processing steps, hence the Examiner concluded that an artisan would find it obvious to apply Sakurai's bonding to de Givry's stack of chips.

However, the Examiner's statement that "de Givry does not teach that the bonding step is performed after all the dies have been stacked" is misleading. De Givry is not merely silent on this point. Rather, it actively teaches away from performing a bonding step after all dies have been stacked. In wire bonding the stack of four chips illustrated in de Givry's figure 2, for example, de Givry expresses that multiple bonding sequences are "necessary." (Translation of de Givry at p. 7, ln. 10-11.) Moreover, de Givry explains why this is necessary: bonding machines at the time de Givry's application was drafted – years after Sakurai's publication date – could accommodate only a limited difference in elevation between the ends of a wire to be bonded. (*Id.* at ln. 1-7.) De Givry further indicated that yet another reason for the necessity of multiple bonding sequences is linked to the repetitive character of the mounting process. (*Id.* at ln. 8-14.) Hence, assuming *arguendo* that the Examiner's interpretation of Sakurai is correct, an accurate interpretation of de Givry teaches against Sakurai and actively discourages combining the teachings.

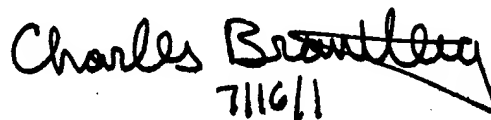
The above instance is not the only example of conflicts between the references. Significantly, the Examiner chose to apply the example in Sakurai that taught a stack of square-shaped chips with bond pads lining the perimeter, wherein each chip in the stack is smaller than the one below it so that the lower chip's perimeter bond pads are exposed. (Office action of 11/16/00 at p. 6 (citing figs. 1 and 3 of Sakurai).) De Givry instead acknowledges such configurations but indicates that the de Givry invention is directed to a different configuration for different chips. (Translation of de Givry at 3, ln. 14-27.) De Givry instead focuses on a stack of elongated rectangular chips with bond pads only on the short ends of each chip. (*Id.* at p. 4, ln. 1-9.) Each of de Givry's chips is the same size (*Id.* at p. 3, ln. 24), such that de Givry's configuration results an upper chip covering at least a portion of the perimeter of the lower chip – in direct contradiction to Sakurai. (See, e.g., *Id.* at figs. 1, 2, and 3.) De Givry further notes that configurations such as those in Sakurai have chips oriented in the same way, whereas de Givry proposes a different and conflicting arrangement. (*Id.* at 3, ln. 25-27.) Thus, given the contradiction in teachings on both the very point the Examiner focused on as well as the the more general contradictions between de Givry and Sakurai, one of ordinary skill in the art would

be discouraged from combining these to references. As a result, they cannot be used to support an obviousness rejection.

#### G. Conclusion

Applicants respectfully request the reversal of all of the Examiner's rejections. Applicants posit that, given the appropriate standards set forth by precedent, claims 12-17 overcome the 112 rejections that the Examiner attempted to support. Further, based on the remarks presented above, Applicants submit that claims 7-8 and 12-17 contain limitations that support their novelty despite any of the references cited against them. Finally, Applicants contend that one of ordinary skill in the art would be actively discouraged from combining the references used to reject claims 9-11.

Respectfully submitted,

  
7/16/11

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Appendix I: Copy of Involved Claims

7. A method of stacking a plurality of die, comprising  
mounting an upper die on a lower die; and  
defining a minimum angular offset with said mounting, wherein said minimum angular offset allows access to a bonding site on said lower die.
8. The method in claim 7, further comprising a step of mounting a lowest die on a substrate.
9. A method of manufacturing a multichip module including dies, comprising:  
stacking all of said dies in a manner such that corresponding portions of any two of said dies define respective axes, and wherein said axes define an offset angle;  
bonding wire to said dies; and  
ensuring that said step of stacking all of said dies occurs with no intervening bonding step.
10. A method of manufacturing a multichip module including dies, comprising:  
stacking all of said dies, wherein corresponding portions of any two of said dies define respective axes, and wherein said axes define an offset angle; and  
bonding wire to said dies;  
wherein said step of stacking comprises stacking all of said dies before said step of bonding wire to said dies.

11. A method of manufacturing a multichip module including dies, comprising:

stacking all of said dies, wherein corresponding portions of any two of said dies define respective axes, and wherein said axes define an offset angle; and  
bonding wire to said dies;  
wherein said step of bonding comprises bonding all of said wire only after said step of stacking all of said dies.

12. A method of assembling a plurality of dies, comprising:

stacking said plurality of dies along an axis;  
establishing an orientation for each die of said plurality of dies;  
marginally clearing a line of sight to contact areas of any immediately underlying die with said orientation for said each die, wherein said line of sight is parallel to said axis; and  
clearing a line of sight to contact areas of any underlying die with said orientation for said each die.

13. A method of stacking a plurality of chips

spiraling said plurality of chips around an axis perpendicular to said plurality of chips;  
and  
ensuring at most a minimum bond pad clearance to each chip of said plurality of chips.

14. The method in claim 13, wherein said step of spiraling said plurality of chips around an axis further comprises spiraling said plurality of chips around an axis passing through said each chip.



15. The method in claim 14, wherein said step of spiraling said plurality of chips around an axis further comprises spiraling said plurality of chips around an axis passing through a center of said each chip.

16. The method in claim 15, wherein said ensuring step comprises rotating a chip around said axis at least to an extent that a bond pad on an underlying chip is exposed.

17. A method of arranging all dies in a multichip device, comprising:

serially stacking said all dies; and

establishing a unique orientation for each die of said all dies, wherein said orientation for said each die defines less than a maximum underlying bond pad clearance.

Appendix 2: References cited in part A of the Argument

*In re Kaslow*, 707 F.2d 1366, 217 U.S.P.Q. 1089 (Fed. Cir. 1983);

*In re Edwards*, 568 F.2d 1349, 196 U.S.P.Q. 465 (C.C.P.A. 1978);

*In re Herschler*, 591 F.2d 693, 200 U.S.P.Q. 711 (C.C.P.A. 1979);

MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) at 2163.02; and

AMERICAN HERITAGE ELECTRONIC DICTIONARY (3d ed. 1993) (defining the terms “clearing” and “marginal”).

an appropriate showing plaintiffs entitled to recover costs and attorney's fees incurred in connection with this U.S.C. § 505.

Plaintiffs filed a motion for recovery of fees May 21, 1981. Plaintiffs' attorneys, Peebles, Esq. and Benjamin J. Esq. have submitted a joint affidavit of the motion. Their joint affidavit states that they expended a total of 20.75 hours in connection with this case and that a customary fee for services of the attorneys by them is \$75 per hour. They request an award of \$1,556.25 for their fees. They also seek to recover disbursements and \$21.60 in costs. Plaintiff has not opposed the motion for fees and costs.

In addition to recover fees and costs in connection with this case, the motion for summary judgment is addressed to discretion. I have concluded that the award of fees and costs is appropriate in this case. However, it appears that the award of fees and costs is excessive. Plaintiff's request for an award of fees total \$1,556.25 is somewhat excessive. Plaintiff's request for summary judgment was unnecessary. Defendant had failed to respond to the motion for summary judgment. More-over, the total recovery was limited to the amount of \$1,000 as attorney's fees is

Plaintiffs' motion for an award of costs is hereby ORDERED granted. Plaintiffs are entitled to recover a total of \$1,000 for attorney's fees, costs and disbursements.

The Clerk is hereby ORDERED to enter judgment as follows: (1) the amount of \$250 shall be awarded to each of the plaintiffs, Robbins Music Corp., Inc., and Warner Bros., Inc. in the amount of \$250 each; (2) the amount of \$250 shall be awarded in favor of the plaintiffs, Robbins Music Corp., Inc., and Warner Bros., Inc. jointly; (3) the amount of \$250 shall be awarded to each of the plaintiffs, Robbins Music Corp., Inc., and Warner Bros., Inc. jointly; and (4) judgment in the amount of \$115.35 shall be entered in favor of the plaintiffs jointly.

Plaintiffs' motion for summary judgment is hereby ORDERED granted. The Clerk entered a "judgment" in the amount of \$1,000. The judgment does not specify the amount of costs and disbursements. Plaintiff and Order expressly raised the possibility that plaintiffs might recover fees and costs, but did not have been entered pursuant to the motion. Plaintiffs had failed to move for an award of costs within the twenty-day period in the Memorandum and Order.

# Court of Appeals, Federal Circuit

In re Kaslow

and Uniform Product Code Council, Inc.

No. 82-599

Decided May 17, 1983

## PATENTS

### 1. Patentability — Invention — In general (§51.501)

Focus of Court of Appeals for Federal Circuit in reviewing decisions of Board of Appeals that are based on Section 103 obviousness grounds must be whether differences between subject matter sought to be patented and prior art are such that subject matter as a whole would have been obvious at time invention was made.

### 2. Patentability — Invention — In general (§51.501)

Discovery of source of problem is part of "subject matter as a whole" inquiry.

### 3. Patentability — Invention — In general (§51.501)

Focus in Section 103 inquiry is not just on difference between claimed subject matter and prior art, but rather on subject matter as a whole; even when appellant has submitted litany of differences between hypothetical combination and his claimed invention, focus is on his claimed invention as whole.

### 4. Patentability — Anticipation — Prior knowledge, use or sale (§51.223)

System that was public use or on sale bar under 35 102(b) is "prior art" under Section 103; holding of In re Corcoran, 208 USPQ 867, is that public use or placing on sale under Section 102(b) is "prior art" that may support Section 103 obviousness rejection.

### 5. Amendments to patent application — New matter (§13.57)

#### Specification — Sufficiency of disclosure (§62.7)

Test for determining compliance with written description requirement is whether disclosure of application as originally filed reasonably conveys to artisan that inventor had possession at that time of later claimed subject matter, rather than presence or absence of literal support in specification for claim language.

### 6. Construction of specification and claims — By specification and drawings — In general (§22.251)

#### Specification — Sufficiency of disclosure (§62.7)

Content of drawings can be considered in determining compliance with written description requirement.

### 7. Court of Appeals for the Federal Circuit — Issues determined (§26.53)

Claims that are not separately argued all stand or fall together.

#### Particular patents — Coupon

Kaslow, Coded Merchandising Coupon, rejection of claims affirmed.

Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Walter Kaslow, Serial No. 684,408, filed May 7, 1976, division of application, Serial No. 532,586, filed Dec. 13, 1974, issued as Patent No. 3,959,624, on May 25, 1976. From rejection of claims 1-4 and 6, applicant appeals (Uniform Product Code Council, Inc., intervenor). Affirmed.

Michael Ebert, New York, N.Y., for appellant.

Thomas E. Lynch (Joseph J. Nakamura and Jere W. Sears on the brief) for Patent and Trademark Office.

Darryl Mexic, Washington, D.C. (Robert G. McMorrow, Washington, D.C., on the brief) for intervenor.

Before Baldwin, Circuit Judge, Skelton, Senior Circuit Judge, and Kashiwa, Circuit Judge.

Kashiwa, Circuit Judge.

This is an appeal from the decision of the Patent and Trademark Office Board of Appeals (the "Board") sustaining the examiner's rejection of claims 1-4 and 6 in application Serial No. 684,408, filed May 7, 1976, entitled "Coded Merchandising Coupon." This application is a division of appellant's application, filed December 13, 1974, which issued as U.S. Patent No. 3,959,624 on May 25, 1976. The claims were primarily rejected as obvious under 35 U.S.C. § 103 in view of

35 U.S.C. § 103, in pertinent part, states:

A patent may not be obtained, though the invention is not identically disclosed or described as set forth in section 102 of this title, if the difference between the subject matter sought to be patented and the prior art are such that the

public use evidence in combination with a prior art reference. The claims were also rejected as being drawn to new matter under 35 U.S.C. § 132,<sup>2</sup> although this rejection was treated as if it had been made under the first paragraph of 35 U.S.C. § 112.<sup>3</sup> We affirm.

# I.

Appellant's invention relates to a method and system for redeeming discount coupons automatically at a retail store's checkout counter. The coupons are used to reduce the purchasing price of consumer items commonly found in retail stores such as supermarkets. The system disclosed employs an existing optical scanner and computer system, the IBM Supermarket System. The discount coupon disclosed is impressed with a Universal Product Code (the "UPC") symbol and a recognition code symbol.

The UPC symbol is a series of light and dark parallel bars which represent 10 digits. The bars are grouped into two groups, generally referred to as "5-by-5," with each group representing five digits. One group of five identifies the manufacturer of consumer items; and the other group identifies a particular consumer item. The "5-by-5" bar code symbol is best illustrated as follows:



The recognition code symbol, also in the UPC bar code format, identifies the item the symbol is impressed on as the discount coupon. In addition, the symbol identifies the amount of the discount.

Appellant's invention is best described by his independent claims:

1. The method of redeeming merchandise coupons issued by various manufacturers which promise specified discounts on certain consumer items produced by these manufacturers and sold in supermarkets, each time bearing a distinctive symbol based on the universal product code in which five digits identify the manufacturer thereof and another five digits identify the specific item, said method comprising the steps of:

A impressing on each coupon a universal product code symbol which corresponds to the symbol appearing on the merchandise item to which it is related and a recognition code symbol representing the coupon;

B storing in a memory at each supermarket carrying said certain consumer items, redemption signals representing the product code symbols borne by the consumer items which are subject to said discounts;

C optically scanning the product code and recognition symbols borne by the coupons offered for redemption at each of said supermarkets to produce coupon signals and recognition signals;

D comparing each coupon signal derived from a coupon with the stored redemption signals in the memory to determine whether a match exists between the

subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

<sup>2</sup> 35 U.S.C. § 132 states:

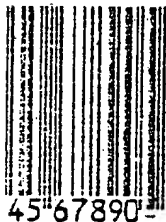
Whenever, on examination, any claim for a patent is rejected, or any objection or requirement made, the Commissioner shall notify the applicant thereof, stating the reasons for such rejection, or objection or requirement, together with such information and references as may be useful in judging of the propriety of continuing the prosecution of his application; and if after receiving such notice, the applicant persists in his claim for a patent, with or without amendment, the application shall be reexamined. No amendment shall introduce new matter into the disclosure of the invention.

<sup>3</sup> 35 U.S.C. § 112, in pertinent part, states:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

<sup>4</sup> For example, a first group representing the numerals "16000" would identify General Mills as the manufacturer of the consumer goods. Similarly, "38000" identifies Kellogg's and "43000" identifies

Post. The second group, however, has a dual function, i.e., identification of both the particular consumer item and the size or weight of that item. For example, the numerals "16000 66410" identify a 7-ounce box of General Mills' Cheerios breakfast cereals. "16000 66510" and "16000 66610" identify the 10-ounce and 15 ounce box of Cheerios, respectively.



on code symbol, also in the format, identifies the item used on as the discount coupon, the symbol identifies the discount.

vention is best described by claims:

Method of redeeming merchandise issued by various manufacturers, wherein specified discounts on certain items produced by these manufacturers and sold in supermarkets, carrying a distinctive symbol and a universal product code in which five digits identify the manufacturer and other five digits identify the said method comprising the

ing on each coupon a universal symbol which corresponds to the symbol appearing on the merchandise which it is related and a code symbol representing the

in a memory at each supermarket said certain consumer item signals representing the symbols borne by the consumer items subject to said discounts; scanning the product code symbols borne by the coupon for redemption at each of said supermarkets to produce coupon signals;

ing each coupon signal and comparing it with the stored signals in the memory to determine if a match exists between the

coupon signal and one of said stored redemption signals and thereby avoid misredemption of the coupon; the comparison being rendered effective only if the coupon signal is accompanied by a recognition signal;

E summarizing the coupons redeemed during a predetermined period at each of said supermarkets to provide data relating to the various manufacturers identified in the redeemed coupons and to the number of redeemed coupons assigned to each of these manufacturers; and

F transmitting the summarized data obtained at each supermarket to a central computer linked to said supermarkets to provide an audit of the overall volume of coupon traffic at these supermarkets and the relative trading-in of coupons issued by the various manufacturers.

\*\*\*

3. In a system for redeeming merchandising coupons issued by various manufacturers to provide discounts on certain consumer items produced by these manufacturers which are sold in supermarkets, each coupon having a universal product symbol printed thereon in which five digits identify the manufacturer of a consumer item and another five digits identify the item and grants a specified discount with respect to a consumer item which bears the same symbol, each coupon also having a recognition code symbol printed thereon representing the coupon, the combination comprising:

A an optical scanning unit at each of said supermarkets carrying said certain items to scan the symbols on each of said coupons to produce a coupon signal and a recognition signal representative thereof;

B a terminal at each of said supermarkets including a memory which stores redemption signals representing the consumer items subject to discount by said coupons, means activated by the recognition signal to compare the coupon signal produced by each scanned coupon with each of the stored redemption signals to determine whether a match exists between the coupon signal and one of the stored redemption signals and to indicate the existence of a match authorizing a coupon redemption, and means to summarize the coupons redeemed during a predetermined period to provide data relating to the various manufacturers identified in the redeemed coupons and to the number of

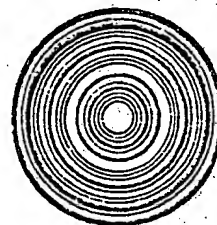
redeemed coupons assigned to each of these manufacturers; and

C means to transmit the summarized data obtained at each supermarket to a central computer linked to said supermarkets to provide an audit of the overall volume of coupon traffic at these supermarkets and the relative trading-in of coupons issued by the various manufacturers.

## II.

The Uniform Product Code Council, Inc.<sup>5</sup> (the "UPCC"), the intervenor in the present appeal, adopted a 10-digit UPC code in 1970.<sup>6</sup> As part of its process of selecting a UPC symbol, the intervenor published a booklet in May, 1973, the UPC Symbol Specification. In that booklet an exemplary bar code symbol, the symbol shown previously, was fully illustrated and described. Subsequently, this well-known bar code symbol was formally adopted by the intervenor for use on products in April, 1974. The intervenor, however, did not adopt the use of this UPC symbol on coupons as of the effective filing date of appellant's application, December 13, 1974.

Participating in the UPC symbol selection process, RCA in 1972 submitted a brochure which showed its proposed UPC symbol, the RCA Bullseye symbol. The Bullseye symbol is best illustrated as follows:



1234567890

The RCA brochure stated that the use of its symbol was for both products and coupons.

<sup>5</sup>UPCC is a tax exempt non-governmental membership corporation organized for the purpose of standardizing the use of the UPC symbol and codes among grocery retail outlets, food manufacturers and distributors, members of the equipment industry who make or desire to make apparatus which can read and process the UPC symbol and codes, and members of the printing industry.

<sup>6</sup>Intervenor's involvement in the present case is discussed more fully at 111 and IV, *infra*.

roup, however, has a dual function of both the particular container size or weight of that item. For example, "16000 66410" identifies a 7-ounce box of Cheerios breakfast cereal and "16000 66610" identifies a 15 ounce box of Cheerios.

Moreover, RCA also disclosed its version of the bar code symbol in the brochure.<sup>7</sup>

To demonstrate the feasibility of its coupon redemption system, RCA, in conjunction with the Kroger supermarket chain and Proctor & Gamble, successfully operated such a system in early 1973 at a Kroger supermarket in Kenwood (Cincinnati), Ohio. The discount coupons used, issued by Proctor & Gamble for four of its products,<sup>8</sup> were marked with the RCA Bullseye symbol. The RCA symbol used a 1-7-2 code — the first digit indicated whether the item is a product or coupon and the next seven digits identified the particular product.<sup>9</sup> For example, a "0" in the first digit indicated that the scanned item is a product; and a nonzero indicated that the scanned item is a coupon. In addition, each nonzero numeral also represented a specific amount of the discount, e.g., "1" could represent a 5¢ discount, "2" a 10¢ discount, and "3" a 25¢ discount.

The RCA computer system included five or six checkout stands connected to a central computer, all of which were located in one supermarket. Each checkout stand included an optical scanner, a display, a keyboard, a printer, and a cash register terminal having a "string" memory and a comparator. In operation, products were optically scanned first and the Bullseye symbol on each item caused the name of the item and the price of that item to be retrieved from the computer memory and shown on the display and stored in the "string" memory. Next, a coupon was optically scanned and the first digit of that Bullseye symbol would trigger a comparator that compares the 7-digit product identification symbol on the coupon with a list of

product identification numbers held in the "string" memory. If a match was made, then the amount of the discount was retrieved from the computer memory and shown on the display and registered by the terminal. If a match was not found by the comparator, then the coupon was dishonored and this occurrence entered in the terminal. There were daily and weekly summaries made and sent to the single manufacturer, Proctor & Gamble. The summary for each coupon item, generated by the computer, included redemptions and attempted misredemptions, misredemption being a crediting of a discount to a customer who did not purchase the product to which the discount applied.

A similar prior art system is IBM's 3660 Supermarket System a brochure for which is incorporated by reference into appellant's application. Each checkout stand of this system includes an optical scanner and a terminal. The optical scanner, which is capable of reading the "5-by-5" UPC symbol, sends a signal corresponding to the UPC code to the terminal which in turn automatically retrieves the item's name and price from its memory and displays them. Moreover, the 3660 System includes a supermarket controller that supervises up to 24 terminals and scanners and provides price look-up and item movement data on over 20,000 different items. At the end of the day or at any convenient time, summarized data may be transmitted to a central computer at the headquarters of the supermarket chain.

Additional prior art references, a magazine article<sup>10</sup> and a newspaper article, are also incorporated into appellant's application — the former discusses the problem of coupon misredemption and the latter estimates that \$100 million a year is lost through coupon misredemption.

### III.

Subsequent to the issuance of appellant's parent application, U.S. Patent No. 3,959,624, the UPC instituted a declaratory judgment action against the applicant regarding the issue patent in the U.S. district court.

Following a denial by the district court of appellant's motion to dismiss,<sup>11</sup> that action was stayed pending the outcome of the present case. Simultaneous with the filing of the civil action, the intervenor filed a petition to

<sup>7</sup> The bar code symbol proposed by RCA is as illustrated:

12345



67898

<sup>8</sup> Ivory Liquid, Pringles Potato Chips, Tide and Charmin.

<sup>9</sup> The exact use of the last two digits is not clear. They are, however, not related to coupon redemption.

<sup>10</sup> "What's Behind The Coupon Boom," *Progressive Grocer*, Nov., 1974, pp. 59-64.

<sup>11</sup> *Uniform Product Code Council, Inc. v. Kaslow*, 460 F.Supp. 900, 203 USPQ 264 (S.D.N.Y. 1978).

ion numbers held in the if a match was made, then discount was retrieved from memory and shown on the screen by the terminal. If a match by the comparator, then the discount was honored and this occurred at the terminal. There were summaries made and sent to the printer, Proctor & Gamble. Each coupon item, generated by the terminal, included redemptions, misredemptions, and misredemption of a discount to a not purchase the product to be applied.

The art system is IBM's 3660, a brochure for which is referred to in appellant's application. The system includes a scanner and a terminal. The scanner, which is capable of reading a UPC symbol, sends a signal to the terminal. The terminal automatically retrieves the price from its memory and, moreover, the 3660 System Market Controller that superintends terminals and scanners and tracks up and item movement of 100 different items. At the time of purchase, the price may be transmitted to a computer at the headquarters of the store.

For art references, a magazine, newspaper article, are also cited in appellant's application — which raises the problem of coupon redemption and the latter estimates that 10% of the year is lost through coupon

### III.

the issuance of appellant's application, U.S. Patent No. 3,710,000, PC instituted a declaratory judgment against the applicant regarding the validity of the patent in the U.S. district court. The district court of the Southern District of New York on to dismiss, "that action pending the outcome of the pre-trial conference with the filing of the intervenor filed a petition to

and The Coupon Boom," Proctor & Gamble, 1974, pp. 59-64. In *United States v. Kaslow*, 203 USPQ 264 (S.D.N.Y.

institute a public use proceeding<sup>12</sup> against appellant's instant application.

### IV.

In the public use proceeding, the intervenor asserted that appellant's invention was unpatentable as obvious in light of prior public use, the RCA-Kroger supermarket system demonstration. The examiner found, inter alia, that (1) the RCA system provided a printed summary of coupon redemption and misredemption for each product; (2) the "5-by-5" UPC symbol and several symbol variations were disclosed to the public in April, 1973; (3) as of December 13, 1974, no UPC-coded symbol for coupons had been adopted and no system was processing UPC-symbolized discount coupons; and (4) the RCA system was capable of printing summaries of data such as summaries by products, by product size, by manufacturer, by date, and by terminal.

In his decision dated July 7, 1980, the examiner barred appellant's application on the ground of prior public use. His conclusions of law are as follows:

It is concluded that the substitution of the UPC 5-5 code symbol recited in the preamble of claims 1 and 3 of Kaslow for the RCA 1-7-2 code symbol for product identification, and with a coupon identifying character added (one of Kaslow's equivalent, alternate arrangements), would be an obvious variant to the process and system demonstrated in the public test conducted in the Kenwood, Ohio, Kroger supermarket in early 1973.

It is also concluded that the summarizing step of section E of claim 1 and summarizing means of section B of claim 3 in which a general purpose computer produces summaries of data regarding redeemed coupons categorized by manufacturer rather than summaries of coupon redemption data categorized by product as was done in the Kroger Kenwood demonstration in February to June of 1973 would be an obvious matter of choice to a person skilled in the art.

<sup>12</sup> See 37 C.F.R. §1.292; MPEP §§720-720.05; See also 35 U.S.C. §102(b). Section 102(b), in pertinent part, states:

A person shall be entitled to a patent unless—  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States \*\*\*

That aside from these obvious variants, everything recited in the claims of this application has been established to have been shown in the Kroger Kenwood public demonstration in 1973 more than one year before the filing of the parent application of this application.

It is concluded that the claims in this application, as amended, are barred on the grounds of public use or sale more than one year prior to the filing of the application under 35 U.S.C. 102(b) and 103.

### V.

Following the public use proceeding, the appellant amended his claims to emphasize that the memory at each supermarket shall identify discount coupons according to the individual manufacturer and transmit this data from each supermarket to a central computer in order to provide an audit. This procedure would therefore eliminate the need for clearinghouses and prevent retailer fraud. In the conventional procedure, the supermarket or the supermarket chain would forward bundles of coupons to a clearinghouse. After manually separating the coupons by manufacturer and/or product, the clearinghouse would credit the account of the supermarket (chain) and forward the coupons to the manufacturers.

The examiner, in his final office action, rejected the claims under 35 U.S.C. §132 as being drawn to new matter in that the amendments to claims 1 and 3 are not supported by the original disclosure. He stated:

In referring to the supplemental IBM materials applicant is compelled to argue that his invention is predicated on what the IBM means might be imagined as inherently capable of doing without any details or modifications set out in the specification as required by section 112. The amendments new [sic] proposed are simply not supported by the original disclosure.

The examiner also rejected the claims at bar under sections 102(b) and 103 as barred by public use more than one year before the effective filing date in view of the public use evidence. The examiner stated:

The Kroger Kenwood demonstration had but a single manufacturer; however the RCA terminal and computer broke down the discount coupons into specific item classes and these item classes were further broken down to specific items by weight with specific discounts and the result were printed out by item at specific intervals. Viewing applicants [sic] broad disclosure and reliance on the IBM technology, it



would be fair to say that the Kenwood demonstration could have broken down the items to various manufacturers if more had been involved and that the plurality of terminals need not have been located in a single store.

## VI.

The Board affirmed both of the examiner's rejections. The Board, however, treated the section 132 rejection as if it had been made under the first paragraph of section 112. See *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981). The Board believed that the sole ground for sustaining the section 132 rejection was the failure of appellant's specification to describe the claimed audit feature. The Board stated:

We do \*\*\* agree with the examiner that the disclosed method and apparatus do not "provide an audit" of overall coupon traffic and of redeemed coupons of the various manufacturers. The appellant does say \*\*\* [in] the specification that the present invention simplifies auditing procedures. However, there is a considerable difference between simplifying auditing procedures and providing an audit. As pointed out by the examiner, an audit requires examination and verification of records for accuracy. The present invention, as disclosed, may aid in the auditing process, but it does not provide an audit. The appellant provides another dictionary definition \*\*\* [in] the reply brief. However, it is not apparent to us that the present invention provides a methodical examination and review of a situation or condition in a business enterprise concluding with a detailed report of findings. Merely summarizing data regarding redeemed coupons hardly constitutes an audit in accordance with the definition provided by the appellant. \*\*\* [T]here is simply nothing in the appellant's disclosure suggesting the use of the present invention as an electronic clearing house.

## Opinion

The appellant primarily argues that the Board erred in holding all claims unpatentable under section 103 in view of the public use evidence and the UPC Symbol Specification booklet. The appellant also argues that the Board erred in holding all claims as being drawn to new matter under section 132 (treated as if rejected under section 112) due to appellant's alleged failure to describe the claimed auditing feature in his application.

## I. Obviousness

First, the appellant contends that his application disclosed the source of a problem and his invention solved that problem, the disclosed problem being retailer fraud and manual clearinghouse operations. To buttress the retailer fraud argument, the appellant cites the *Progressive Grocer* magazine article for the proposition that the coupon misredemption problem lies with the retailers. In addition, appellant's specification discusses the existing clearinghouse operations of manually sorting coupons which have been received from various retailers. Accordingly, appellant's invention would eliminate the identified problem of retailer fraud and manual clearinghouse operations.

Next, the appellant contends that combining the public use evidence with the UPC Symbol Specification booklet would not produce the claimed invention. Further, the appellant contends that the claims at bar, citing *In re Corcoran*, 640 F.2d 1331, 208 USPQ 867 (CCPA 1981), do not completely read on a hypothetical arrangement created by combining the RCA system in view of the UPC Symbol Specification. In support of the latter contention, the appellant argues that, inter alia, the UPC Symbol Specification was not concerned with the processing of coupons; the RCA Bullseye code was a private code; the RCA Bullseye code did not identify the manufacturer; the RCA system did not provide a summary of the coupons broken down in accordance to manufacturers; and the RCA system did not employ a central computer which linked several supermarkets. We, however, disagree.

[1,2] In reviewing decisions of the Board which are based on section 103 obviousness grounds, our focus must be whether "the differences between the subject matter sought to be patented and the prior art are such that the *subject matter as a whole* would have been obvious at the time the invention was made." [Emphasis added]. 35 U.S.C. §103. See *Graham v. John Deere Co.*, 383 U.S. 1, 13, 148 USPQ 459, 465 (1966); *Lockheed Aircraft Corp. v. United States*, 553 F.2d 69, 77, 193 USPQ 449, 454 (Ct. Cl. 1977); *In re Buehler*, 515 F.2d 1134, 1140, 185 USPQ 781, 786 (CCPA 1975). Moreover, the discovery of the source of a problem is a part of the "subject matter as a whole" inquiry. In *In re Sponnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (1969), the Court of Customs and Patent Appeals stated:

It should not be necessary for this court to point out that a patentable invention



ent contends that his application source of a problem and that problem, the design retailer fraud and manipulations. To buttress the argument, the appellant cites a grocery magazine article for the coupon misredemption with the retailers. In addition, the specification discusses the operations of manually which have been received from the retailers. Accordingly, appellant would eliminate the identified retailer fraud and manual transactions.

ent contends that combination evidence with the UPC symbol booklet would not produce prior art. Further, the appellant's claims at bar, citing 515 F.2d 1331, 208 USPQ 835, do not completely read on the combination created by the prior art in view of the UPC symbol. In support of the latter, appellant argues that, inter alia, the Symbol Specification was not directed to processing of coupons; the code was a private code; the code did not identify the manufacturer; the system did not provide a means for coupons broken down by manufacturer; and the RCA-Kroger system employed a central computer for all supermarkets. We, how-

ever, the Board's decisions in section 103 obviousness must be whether "the subject matter sought by the prior art are such that the invention would have been obvious to one having ordinary skill in the art at the time the invention was made." 35 U.S.C. §103. See *Graham*, 383 U.S. 1, 13, 148 (1966); *Lockheed Aircraft Corp.*, 553 F.2d 69, 77, 193 (Ct. Cl. 1977); *In re* 1134, 1140, 185 USPQ 975. Moreover, the discovery of a problem is a part of a "whole" inquiry. *In re* 578, 585, 160 USPQ 578. Court of Customs and

is necessary for this court to find a patentable invention

may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the "subject matter as a whole" which should always be considered in determining the obviousness of an invention under 35 U.S.C. §103. [Emphasis in original].

See also *In re Peehs*, 612 F.2d 1287, 1290, 204 USPQ 835, 837 (CCPA 1980).

We agree with the Board that appellant's specification does not support the argument that he discovered the source of a problem—retailer fraud. Appellant's specification only mentions the problem of misredemption fraud committed by consumers, local charitable groups, check-out clerks, and retail store managers. The *Progressive Grocer* article describes, in addition to the previously mentioned groups, the trash collectors. Retailers and supermarket chains, however, are mentioned only in relation to the "retailer in-ad" coupon problem.<sup>13</sup> Thus, appellant's application fails to describe or suggest the elimination of the retailer fraud problem.

We also agree with the Board that appellant's invention fails to eliminate the problem of manual clearinghouse operations. Appellant's specification merely describes the typical clearinghouse operations and the considerable cost associated with such operations. In reading the specification in the light most favorable to the appellant, we find summarized data may be transmitted from each supermarket controller to a central computer at the headquarters. We do not believe one skilled in the art would conclude that the retailer would bypass the clearinghouse and submit the summarized data to the manufacturer in lieu of the redeemed coupons.

Accordingly, we fail to find a clear indication that the appellant discovered the source of the problem. See *Sponnoble*, 405 F.2d at 585, 160 USPQ at 243. As the Court of Customs and Patent Appeals said in *In re Wiseman*, 596 F.2d 1019, 1023, 201 USPQ 658, 661 (1979),

[i]n contrast, in the present case we find only the reiterated statement of counsel that appellants discovered the source of the problem. There is, however, nothing of record to substantiate the assertion.

As for appellant's contentions that the public use evidence combined with the UPC

<sup>13</sup> Retailer in-ad coupons are coupons issued by retailers which permit the consumer to redeem specified brand-name product items. Appellant's argument, however, deals with the problem of retailers misredeeming coupons issued by manufacturers.

Symbol Specification booklet would not produce the claimed invention and the claims at bar do not read completely on the combination, we also disagree.

[3] In a section 103 inquiry, the focus is not just on the differences between the claimed subject matter and the prior art, but rather on the subject matter as a whole. See *Buehler*, 515 F.2d at 1140, 185 USPQ at 786. Although the appellant has submitted a litany of differences between the hypothetical combination and his claimed invention, we must focus on his claimed invention as a whole. See *In re Gulack*, — F.2d —, 217 USPQ 401 (Fed. Cir. 1983).

[4] The RCA-Kroger system included all features of the claims at bar except for the requirements of multiple supermarkets, the use of the UPC "5-by-5" symbol on coupons, and the central computer at the headquarters of the supermarket chain. Since the RCA-Kroger system was a public use or on sale under 35 U.S.C. §102(b), it is "prior art" under section 103. See *Corcoran*, supra. Moreover, the appellant has misplaced the emphasis of *Corcoran*. Whereas the appellant believes that *Corcoran* stands for the proposition that his claims at bar must read completely on a prior art combination, the *Corcoran* holding is that a public use or placing on sale under section 102(b) is "prior art" which may support an obviousness rejection under section 103.

Since the fundamental teaching of the RCA-Kroger system is automatic coupon handling between the consumer and the retailer, the fact that the RCA Bullseye code was a "private" code is not significant. Moreover, the appellant does not appear to contest the Board's holding that it would have been obvious to substitute the UPC "5-by-5" code for the RCA Bullseye code after the USPTO's selection and publication of the UPC symbol in 1973.

Contrary to appellant's contention, the RCA-Kroger system and code did identify the manufacturer of the consumer items, albeit only one manufacturer, Proctor & Gamble. Further, the summary data of redemptions and misredemptions grouped by product inherently identified the manufacturer. Distinguishing the claims at bar from the device in public use on the ground that only a single manufacturer provided coupons is not convincing. The fact that only one manufacturer was involved in issuing coupons did not alter the means or method steps disclosed in the public use proceeding and does not alter their anticipation of the corresponding means and method steps in the claims at bar.

Even if appellant's claims are read to require the summarized data to include a single identifier and a single total of redeemed coupons for each manufacturer, appellant's invention as a whole would have been obvious since the collating and sorting of information is conventional for a computer. For example, the IBM 3660 has summarization capability. Further, adding a central computer to a plurality of supermarkets each of which having a RCA-Kroger system also would have been obvious. Since the IBM 3660 brochure disclosed the means and method of forwarding data to a headquarters, the placement of RCA-Kroger systems into several supermarkets would not have been unobvious. See *Alco Kar Kurb, Inc. v. Ager*, 286 F.2d 931, 128 USPQ 269 (3d Cir. 1961); *In re Long*, 153 F.2d 110, 68 USPQ 169 (CCPA 1946).

After considering the prior art evidence and references in their entirety for all they teach and suggest,<sup>14</sup> we hold appellant's claimed invention as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

## II. New Matter

The appellant also contends<sup>15</sup> that the claim language "to provide an audit," which appears in his claim 1 paragraph F and claim 3 paragraph C, is supported by the following passages in his specification:

More particularly, it is an object of the invention to provide a merchandise coupon having UPC indicia thereon which minimizes the possibility of misredemption and affords a running account of the number of valid coupons accepted, thereby simplifying auditing and redemption procedures.

With the present invention, the summarized data may include data relating to the coupons honored in the various stores linked to the central computer, so that a check may be made on the overall volume of coupon traffic and the relative trading in of coupons issued by various manufacturers. [Emphasis added].

[5, 6] We disagree. As the Board in the instant appeal correctly said:

The test for determining compliance with the written description requirement is

whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. *In re Edwards*, 558 F.2d 1349, 196 USPQ 465 (CCPA 1978); *In re Herschler*, 591 F.2d 693, 200 USPQ 711 (CCPA 1979). The content of the drawings may also be considered in determining compliance with the written description requirement. *In re Barker*, 559 F.2d 588, 194 USPQ 470 (CCPA 1977). [Emphasis in original].

Appellant contends that the word "check" is in the previously mentioned quote and the word "audit" in his claims mean the same thing. However, the latter passages of the quote do not describe any particular auditing or checking procedure to be carried out as part of the invention. Rather, they merely state that the information obtained by the invention might be used in some unspecified way to simplify auditing or to check on coupon volume. The claim language, on the other hand, implies that there is some mechanism or step which is a part of the invention and which performs an audit on the data transmitted to the central computer. Nowhere in the specification is either the step or method of performing an audit on the summary information described.

In addition, appellant contends that since an audit is a verified statement and the check-out system only accepts those coupons that matched the products purchased, its summary of coupons redeemed is a verified statement. Accordingly, the summary is an audit. However, if the summary is the audit, as the appellant urges, what is the step and means claimed for providing the audit? Since the claims recite transmitting the summary data to a central computer to provide an audit, the implication is that the audit takes place after the transmission of the data. This, however, is inconsistent with appellant's position that the summary data itself is the audit. Moreover, this contention is also not supported by the specification.

We, therefore, hold appellant's claims are not supported by the specification.

[7] Since the claims are not separately argued, they all stand or fall together. See *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). Accordingly, we hold the

<sup>14</sup> See *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977); *In re Umbricht*, 404 F.2d 386, 160 USPQ 15 (CCPA 1968).

<sup>15</sup> The appellant does not contest the basis of the Board's decision — treating the new matter rejection under 35 U.S.C. §132 as if made under the first paragraph of 35 U.S.C. §112.

<sup>16</sup> Appellant now offers, as he had to the Board, to substitute the word "check" for "audit" in his claims. We, however, will make no comments on this proposition.

the disclosure of the application as filed reasonably conveys to the inventor had possession at the time of the later claimed subject matter than the presence or absence of support in the specification for the language. In *re Edwards*, 558 F.2d 1097, 200 USPQ 465 (CCPA 1978); In *re Edwards*, 591 F.2d 693, 200 USPQ 711 (79). The content of the drawings must be considered in determining consistency with the written description. In *re Barker*, 559 F.2d 588, 200 USPQ 470 (CCPA 1977). [Emphasis added].

Appellant contends that the word "audit" in his claims means the previously mentioned quote. However, the latter passages do not describe any particular auditing procedure to be carried out by invention. Rather, they merely describe information obtained by the audit to be used in some unspecified auditing or to check on computer. The claim language, on the other hand, states that there is some mechanism which is a part of the invention and which performs an audit on the data transmitted to a central computer. Nowhere in the specification is either the step or method of performing an audit on the summary information described.

Appellant contends that since the summary is a verified statement and the check only accepts those coupons that are products purchased, its summary is deemed to be a verified statement. The summary is an audit. However, the summary is the audit, as the question is, what is the step and means for providing the audit? Since the transmitting of the summary data to the computer to provide an audit, the question is that the audit takes place after receipt of the data. This, however, is inconsistent with appellant's position that the audit itself is the audit. Moreover, appellant's position is also not supported by the

moreover, hold appellant's claims are rejected by the specification. Appellant's claims are not separately art-stand or fall together. See In *re Edwards*, 591 F.2d 693, 200 USPQ 711 (79). Accordingly, we hold the

now offers, as he had to the Board, the word "check" for "audit" in his claims. However, will make no comments on

Board committed no reversible error and its decision is affirmed.

Affirmed.

#### Court of Appeals, Ninth Circuit

The Prudential Insurance Company of America  
v. Gibraltar Corporation  
of California et al.

No. 81-5874

Decided Dec. 16, 1982

#### TRADEMARKS

##### 1. Laches — Affecting accounting or injunction (§44.05)

Laches is equitable defense that can bar injunctive relief.

##### 2. Laches Trademarks (§44.25)

##### Registration — Incontestability (§67.751)

Incontestability is defensive provision only that helps protect registrant's mark from cancellation, but is of no offensive use; incontestability does not preclude defense of laches.

##### 3. Statutes and treaties (§67.80)

Ninth Circuit reads Lanham Act narrowly; Lanham Act protects against fraud and consumer confusion; anticompetitive and irrational market behavior is invited if Act is read more broadly.

##### 4. In general (§67.01)

Function of trademark is identification of product or service to consumer.

##### 5. Identity and similarity — How determined — Considering goods (§67.407)

Use of similar symbols to identify different products presents less of problem of confusion than if both parties supplied same service.

##### 6. Evidence — In general (§67.331)

Surveys are admissible, if relevant, either as nonhearsay or through hearsay exception; technical unreliability goes to weight accorded survey not its admissibility.

##### 7. Abandonment — In general (§67.031)

15 USC 1127 requires two elements, non-use and intent not to resume use; abandonment of trademark, being in nature of forfeiture, must be strictly proved.

Appeal from District Court for Central District of California, Real, J.

Action by The Prudential Insurance Company of America, against Gibraltar Financial Corporation of California, and Gibraltar Savings & Loan Association, for trademark infringement, trademark dilution, and unfair competition. From judgment for defendants, plaintiff appeals. Affirmed in part, vacated in part.

John S. Kingdon, and Howrey & Simon, both of Washington, D.C., for plaintiff.

Marvin Jubas, Los Angeles, Calif., for defendants.

Before Goodwin, Hug, and Boochever, Circuit Judges.

Goodwin, Circuit Judge.

This dispute is about the likeness of a rock. Prudential Insurance Company of America alleges that Gibraltar Financial Corporation of California and Gibraltar Savings & Loan Association (collectively, Gibraltar) have misappropriated its corporate symbol, a picture of the Rock of Gibraltar. Prudential sued for injunctive relief alleging (1) infringement of a registered service mark under the Lanham Act, 15 U.S.C. §§1051-1127, (2) dilution of a registered service mark in violation of Cal. Bus. and Prof. Code §§14320-14330, and (3) unfair competition. Gibraltar counterclaimed, alleging that Prudential has abandoned four older versions of Prudential's logo. The district court held for Gibraltar on all issues and ordered cancellation of four of Prudential's trademark registrations. This appeal followed.

In 1896, Prudential adopted a likeness of the Rock of Gibraltar as its service mark. Prudential registered different versions of its mark in 1948, 1955, 1965, 1973 and 1979. The first four registrations had achieved incontestability status at the time of this action.

Gibraltar Savings and Loan Association was formed in 1952 and first used a rock logo in 1954. Gibraltar Financial Corporation was formed in 1959 and from that date until 1968,

1 F.Supp. 61, 67, 73, 175 USPQ 533-534 (N.D. Cal. 1972), aff'd 3 F.2d 1226, 185 USPQ 257 (9th Cir. 1952); *Rolls-Royce Motors Ltd. v. A & S*, supra; 4 Callmann, *Unfair Competition, Trademarks and Monopolies* § 152 (1969).

Defendant has committed acts of unfair competition by using plaintiff's marks in its catalogues and on its merchandise.

Plaintiff has not committed acts which violate the antitrust laws of the United States and defendant is not entitled to relief sought in its counterclaim.

Plaintiff is entitled to equitable relief in the form of permanent injunction from defendant's trademark infringement and unfair competition.

A permanent injunctive relief shall be granted from and after January 1, 1978. Plaintiff is hereby directed to submit a form of permanent injunction consistent with the

# Court of Customs and Patent Appeals

*In re Edwards, Rice, and Soulen*

No. 77-532 Decided Jan. 12, 1978

## PATENTS

### 1. Patentability — Anticipation — Patents — In general (§51.2211)

Patent, by same inventive entity, that was issued less than one year before parent application, whose filing date applicants are entitled to rely on, is removed as reference under 35 U.S.C. 102(b).

### 2. Patentability — Anticipation — Patents — In general (§51.2211)

Applicants who filed their parent application within one year of effective date of only reference are within one-year grace period allowed by 35 U.S.C. 102(b).

### 3. Specification — Sufficiency of disclosure (§62.7)

Function of description requirement is to ensure that inventor had possession of specific subject matter later claimed by him as of filing date of application relied on; it is not necessary that application describe claimed invention in *ipsis verbis* to comply with description requirement; all that is required is that it reasonably convey to persons skilled in art that inventor had possession of subject matter later claimed by him, as of its filing date; each case that inquires into whether parent application provides adequate direction that reasonably leads persons skilled in art to later claimed compound turns on its own specific facts, by its very nature.

### 4. Claims — Article defined by process of manufacture (§20.10)

#### Specification — Sufficiency of disclosure (§62.7)

Description of claimed compound that describes it by process of making it is not intrinsically defective; however, each case must be decided on its own facts; Court of Customs and Patent Appeals' primary concern in deciding whether application complies with written description requirement is not with mode selected for compliance; application that adequately describes process that will inherently produce compound does not necessarily adequately describe compound.

### 5. Claims — Broad or narrow — Markush type (§20.205)

Applicant claiming reactant as Markush group consisting of two members is asserting that these two members are alternatively usable for purposes of invention, and, therefore, resulting compound produced by overall process will exhibit disclosed utility regardless of which is chosen.

### 6. Pleading and practice in Patent Office — Rejections (§54.7)

#### Specification — Sufficiency of disclosure (§62.7)

Burden of showing that claimed invention is not described in application rests on Patent and Trademark Office that must give reasons why description, not in *ipsis verbis* is insufficient and statement by Board of Appeals that Court of Customs and Patent Appeals has "significantly tightened up" on written description requirement in recent line of cases is no substitute for such reason; precedential value of prior case is extremely limited, since each case must be decided on its own facts.

#### Particular patents — Polyols

Edwards, Rice, and Soulen, Water Insoluble Nitrogen-Containing Polyols, rejection of claim 3 reversed.

Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Gayle D. Edwards, Doris M. Rice, and Robert L. Soulen, Serial No. 110,599, filed Jan. 28, 1971; continuation in part of application, Serial No. 682,560, filed Nov. 13, 1967, continuation in part of application, Serial No. 288,474, filed June 17, 1963. From decision rejecting claim 3, applicants appeal. Reversed; Miller, Judge, dissenting with opinion.

James L. Bailey, Houston, Tex., for appellants.

Joseph F. Nakamura (Fred W. Sherling, of counsel) for Commissioner of Patents and Trademarks.

Before Markey, Chief Judge, and Rich, Baldwin, Lane, and Miller, Associate Judges.

Lane, Judge.

This appeal is from the decision of the Patent and Trademark Office (PTO) Board of Appeals (board) affirming the final rejection of claim 3, the sole claim in application





phenol, diethanolamine, and formaldehyde are reacted in a molar ratio of the predominant component of the MRP will be a pentol (a compound with five hydroxyl groups). The reaction, which appellants denominate as epoxylation reaction, involves reaction of propylene oxide with the MRP in a ratio of 3:1. The predominant product of this reaction will be the claimed compound, viz., a pentol with three degrees of oxidation.<sup>3</sup>

#### Rejection History and the Rejection

The examiner finally rejected claim 3 on separate grounds: (1) under 35 USC 102(b), as being indefinite; or (2) under 35 USC 103, as being obvious over Edwards et al., U.S. Patent No. 2,998,452, August 29, 1961; and (3) under 35 USC 102(b), as being anticipated by Edwards et al., U.S. Patent No. 3,297,597, January 10, 1967, on an application filed May 23, 1966; the grandparent of this invention is serial No. 288,474, filed June 3, 1967, which is the same application from appellants' application originated from appellants' grandparent application). In respect to the §102(b) rejection, the examiner was of the opinion that neither the parent nor parent applications provided a written description (35 USC 112, first paragraph) of the claimed compound; consequently, appellants' claim that they were entitled to their earlier filing dates under 35 USC 120 was denied. By restricting appellants to their actual filing date (May 23, 1966), Edwards et al. (which was filed January 10, 1967) constituted a prior art bar.

The board reversed the first two grounds of rejection but affirmed the third ground of rejection. Since the parent application was filed less than one year after the Edwards et al. patent issued, the board concluded that if appellants were entitled to rely on its filing date, Edwards et al. inventive entity as appellants) would have been removed as a reference under §102(b). In appellants' concession that Edwards et al. did, in fact, disclose the claimed

<sup>3</sup>After, the product of this reaction will be referred to as the MRP (Mannich product).

The product will, in reality, be a mixture of each having various degrees of propoxylation; the predominant component will, however, be the claimed polyol.

polyol, the sole remaining issue was whether the parent application provided a written description (35 USC 112, first paragraph) of the claimed polyol. Concluding that it did not, the board stated:

[T]here is no description in said parent of the invention claimed in the present case. The only disclosure of nonyl phenol (required by claim 3 as the phenolic component) appears \* \* \* with about twenty-five other phenols. While it might be obvious to combine . . . [this] disclosure \* \* \* and Examples III or VIII, [that is to say] select *nonyl phenol* out of a list of twenty-five phenols, and then combine with propylene oxide in an amount sufficient to obtain the pentol of claim 3, we cannot agree that such selection and combination is equivalent to a "written description" of the claimed invention.

We note that a recent line of CCPA cases have significantly tightened up on the application of the "written description" requirement of 35 USC 112, first paragraph; see *In re Ruschig*, 54 CCPA 1551, 379 F.2d 990, 154 USPQ 118 (1967); *Fields et al. v. Conover et al.*, 58 CCPA 1366, 443 F.2d 1386, 170 USPQ 276, 279-80 (1971) and *In re Smith*, 458 F.2d 1389, 173 USPQ 679, 683 (CCPA 1972). [Emphasis in original.]

#### Issue

The dispositive issue is whether appellants' parent application, serial No. 682,560, filed November 13, 1967, complies with the written description requirement of 35 USC 112, first paragraph, vis-a-vis the subject matter of the appealed claim; if it does, then the claim is entitled to the filing date of the parent application under 35 USC 120. *In re Smith*, 59 CCPA 1025, 458 F.2d 1389, 173 USPQ 679 (CCPA 1972), and *Edwards et al.* is removed as a reference.

#### Opinion

[2] While appellants argue that both the parent and grandparent applications provide an adequate written description of the claimed compound, in our view it is unnecessary to decide whether the grandparent application complies with the description requirement. Appellants filed their parent application within one year of the effective date (issue date) of the only reference - their own patent, and, as such, are within the one-year grace period allowed by §102(b). Cf. *In re Gibbs*, 58 CCPA 901, 437 F.2d 486, 168 USPQ 578 (1971).

Turning to the parent application, appellants assert that it, by virtue of providing an adequate written description of the aforementioned reactions, provides an adequate written description of the claimed polyol. That these reactions will produce, as the predominant product, the claimed polyol, is not in dispute. The board, however, took the position that the parent does not provide an adequate description of the two reactions; specifically, that it provides neither direction for selecting, as the phenolic reactant, para-nonylphenol, nor direction for choosing a propylene oxide/MRP molar ratio of 3:1.

[3] The function of the description requirement is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him. E.g., *In re Blaser*, 556 F.2d 534, 194 USPQ 122 (CCPA 1977); *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Smith & Hubin*, 481 F.2d 910, 178 USPQ 620 (CCPA 1973). To comply with the description requirement it is not necessary that the application describe the claimed invention in *ipsis verbis*, *In re Lukach*, 58 CCPA 1233, 442 F.2d 967, 169 USPQ 795 (1971); all that is required is that it reasonably convey to persons skilled in the art that, as of the filing date thereof, the inventor had possession of the subject matter later claimed by him. See *In re Driscoll*, 562 F.2d 1245, 195 USPQ 434 (CCPA 1977). In the context of the present case, this translates into whether the parent application provides adequate direction which reasonably leads persons skilled in the art to the later claimed compound. See *Flynn v. Eardley*, 479 F.2d 1393, 178 USPQ 288 (CCPA 1973). By the very nature of this inquiry, each case turns on its own specific facts. See *In re Driscoll*, *supra*.

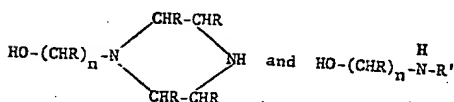
[4] As the board apparently recognized, the description in the parent is not intrinsically defective merely because appellants chose to describe their claimed compound by the process of making it; our primary concern is whether the description requirement has been complied with, not the mode selected for compliance. Cf. *In re Smith & Hubin*, 481 F.2d at 914, 178 USPQ at 624. It is undisputed that the aforementioned reactions will inherently produce, as the predominant component, the claimed compound. Further, the parent discloses that:

Although it is within the scope of the present invention to separate the crude \* \* \* [MRP] by conventional means into specific components or fractions, it is a feature of the pre-

sent invention that the entire crude Mannich reaction product may be used as such without attempting to isolate the individual components thereof. [Emphasis added.]

The parent application, therefore, recognizes that, if desired, conventional means can be used to separate components of the MRP and, ostensibly, of the final product. While it is true, as stated in the dissenting opinion, that in the preferred embodiment the parent does not separate the components, this does not negate the express disclosure that such separation is "within the scope" of the parent invention; if such express language does not evidence "possession," then nothing does. Thus, *on the facts of this case*, an adequate description of the aforementioned reactions is, concomitantly, an adequate description of the claimed compound. This should not be construed as meaning that if an application adequately describes a process which, inherently, will produce a compound, then it necessarily adequately describes the compound: Each case must be decided on its own facts.

[5] Example III, referred to by the board, discloses reacting phenol, diethanolamine, and formaldehyde in a molar ratio of 1:2:2; propylene oxide is then reacted with the resulting MRP in a molar ratio of 4.01:1. With respect to example III, we have noted that in their briefs, both appellants and the solicitor indicate that example III uses 3.6 moles of propylene oxide per mole of MRP; this is incorrect. Example III reacts 21.7 moles of propylene oxide with 5.41 moles of MRP, thus giving a molar ratio of 4.01:1. Original claim 2 of the parent application, which is part of the original disclosure, *In re Gardner*, 475 F.2d 1389, 177 USPQ 396, rehearing denied, 480 F.2d 879, 178 USPQ 149 (CCPA 1973), and to which the board made no reference, claims a polyol produced by reacting 1-7 moles of propylene oxide with one mole of the MRP of *phenol or nonylphenol*, an alkanolamine, and formaldehyde, reacted in a molar ratio of from 1:1:1 to about 1:3:3. The alkanolamine is selected from alkanolamines having the formulae:



where R is hydrogen or C<sub>1</sub>-C<sub>4</sub> alkyl, R' is hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl or -(CHR)<sub>n</sub>-OH, and

n is a positive integer having a value of 2 to 5. Diethanolamine is a species which falls within these generic formulae. Moreover, of the eight working examples in the parent which describe making various polyols, *all eight* use diethanolamine as a reactant. This provides adequate direction for selecting diethanolamine as the alkanolamine in claim 2. Thus, claim 2 recites a process for producing a genus of compounds which includes both the predominant compound produced by example III and the claimed compound. More importantly, by claiming the phenolic reactant as a Markush group consisting of phenol or nonylphenol, it is generally understood that appellants are asserting that these two members are alternatively usable for the purposes of the invention, and therefore, regardless of which is chosen, the resulting compound produced by the overall process will exhibit the disclosed utility. See *In re Driscoll*, supra; see generally *In re Skoll*, 523 F.2d 1392, 1397, 187 USPQ 481, 484-85 (CCPA 1975). We view this as providing adequate direction for those skilled in the art to substitute nonylphenol for phenol in example III. The solicitor concedes as much in his brief; to conclude otherwise would make the statement in *In re Lukach*, 58 CCPA at 1235, 442 F.2d at 969, 169 USPQ at 796, that "the invention claimed does not have to be described *in ipso verbis* in order to satisfy the description requirement of §112," meaningless.

Turning to the propylene oxide/MRP mole ratio in the second reaction, the solicitor's position is that, at best, the parent application describes the use of from 1 to 5 moles of propylene oxide per mole of MRP, and that "there is no specific teaching of \* \* \* reducing the amount of propylene oxide to exactly 3 moles as required by the claimed compound." At oral argument, appellants asserted that while a propylene oxide/MRP molar ratio of 3 would, of course, produce the claimed compound, a somewhat larger ratio, such as the 3.6 used in example III, would also produce the claimed compound. As was previously shown, example III does not disclose the use of a molar ratio of 3.6. Moreover, in their brief before us, appellants stated that a molar ratio of 3 is required to produce the claimed compound. Therefore, for purposes of this appeal, we will assume that exactly 3 moles of propylene oxide per mole of MRP is required to produce the compound of appealed claim 3 (the board, in reversing the §103 rejection over *Bruson et al.*, and

ive integer having a value of 2 to diamine is a species which falls in the generic formulae. Moreover, of working examples in the parent application making various polyols, all diethanolamine as a reactant. This provides adequate direction for selecting the compound as the alkanolamine in claim 2 recites a process for a genus of compounds which includes the predominant compound by example III and the claimed compound.

More importantly, by claiming the reactant as a Markush group of phenol or nonylphenol, it is understood that appellants are not that these two members are alterable for the purposes of the invention; therefore, regardless of which is the resulting compound produced, the process will exhibit the distinct utility. See *In re Driscoll*, supra; see *In re Skoll*, 523 F.2d 1392, 1397, 481, 484-85 (CCPA 1975). We are providing adequate direction for the art to substitute non-phenol in example III. The applicant does as much in his brief; otherwise would make the statement *Lukach*, 58 CCPA at 1235, 442 USPQ at 796, that "the invention does not have to be described *in verbis* in order to satisfy the requirement of §112," ss.

to the propylene oxide/MRP in the second reaction, the position is that, at best, the parent application describes the use of from 1 to 5 moles of propylene oxide per mole of MRP, "there is no specific teaching of the amount of propylene oxide to be used." At oral argument, the applicant asserted that while a propylene oxide/MRP molar ratio of 3 would, of course, produce the claimed compound, a larger ratio, such as the 3.6 used in example III, would also produce the compound. As was previously stated, example III does not disclose the use of a ratio of 3.6. Moreover, in their brief, appellants stated that a ratio of 3 is required to produce the compound. Therefore, for purposes of appeal, we will assume that exactly 3 moles of propylene oxide per mole of MRP is required to produce the compound of claim 3 (the board, in reversing its rejection over *Brunson et al.*, and

the solicitor also stated that 3 moles is required).

To determine whether the parent application provides adequate direction for using the required propylene oxide/MRP molar ratio, an understanding of the underlying reactions is essential. Broadly stated, the parent application discloses first reacting a phenolic compound with an alkanolamine and formaldehyde, in molar ratios of from 1:1:1 to about 1:3:3, to produce an MRP. The resulting MRP potentially can contain three different types of reactive positions: phenolic hydroxyl group, free amino hydrogen atom, and primary hydroxyl group. In the second reaction, alkylene oxide (propylene oxide is disclosed as being preferred) will react with any of these three positions. The molar ratio used in the first reaction will determine whether the MRP is a triol, pentol, etc.; the molar ratio used in the second reaction will determine the degrees of propoxylation of the final product.

Applying this to example III, since the first reaction uses a molar ratio of 1:2:2 (phenol: diethanolamine: formaldehyde), the predominant MRP and the predominant final compound, like the claimed compound, will be a pentol; however, since example III uses a propylene oxide/MRP molar ratio of 4.01:1, the pentol will have four degrees of propoxylation, whereas the claimed pentol has three degrees of propoxylation. With respect to the degree of propoxylation, the parent application discloses that:

In accordance with the present invention, the Mannich reaction product is reacted with an alkylene oxide to provide the final polyol. The nitrogen present in the Mannich condensate [MRP] has sufficient catalytic activity to promote the reaction of one mol of the alkylene oxide with each free amino hydrogen atom and phenolic and primary hydroxyl group and no additional catalyst is needed. \* \* \* For example, seven mols [the stoichiometric amount] of propylene oxide will add to the Mannich product prepared from a molar ratio of 1:3:3 of phenol, diethanolamine and formaldehyde to give a heptol . . . .

\* \* \*

*It is, of course, possible to add less than one mol of alkylene oxide per free phenolic and primary hydroxyl group in the Mannich condensation product. The minimum desirable amount of alkylene oxide is one mol per free amino*

*hydrogen atom and phenolic hydroxyl group.*

\* \* \* Generally, more than the minimum amount of alkylene oxide is used to obtain a product having a lower hydroxyl [sic, hydroxyl] number and lower viscosity. For example, a desirable product is that obtained by the addition of five mols of propylene oxide (rather than the maximum of seven or minimum of one) to the heptol obtained by the Mannich condensation of phenol, formaldehyde and diethanolamine in a molar ratio of 1:3:3. [Emphasis added.]

The first reaction in example III, as well as the first reaction required to produce the polyol of appealed claim 3, will produce, as the predominant MRP, a compound which has one phenolic hydroxyl group, no free amino hydrogen atoms, and four primary hydroxyl groups. With this in mind, we believe the above quoted disclosure would provide those skilled in the art with adequate direction for concluding that, in example III, from 1 (but preferably more than 1) to 5 moles of propylene oxide can be reacted with each mole of MRP and that, most importantly, the polyol produced *will have the disclosed utility*; ergo, it provides adequate direction for using three moles of propylene oxide in example III.

[6] When viewed in the context of what the parent application actually describes, the PTO has, in effect, done nothing more than argue lack of literal support. The burden of showing that the claimed invention is not described in the application rests on the PTO in the first instance, and it is up to the PTO to give reasons why a description *not in ipso verbis* is insufficient. In *re Salem*, 553 F.2d 676, 682, 193 USPQ 513, 518 (CCPA 1977); In *re Wertheim*, 541 F.2d at 265, 191 USPQ at 98. Stating, as the board did, that in a recent line of cases this court has "significantly tightened up" on the written description requirement, is no substitute for such reasons. Parenthetically, with respect to the board's perception of this court's past cases, suffice it to say that each case must be decided on its own facts, see, e.g., *In re Driscoll*, supra, and that precedential value of prior cases is, therefore, extremely limited.

In conclusion, we hold that, as a *factual matter*, the parent application, taken as a whole, reasonably leads persons skilled in the art to the reaction of para-nonylphenol, diethanolamine, and formaldehyde, in a molar ratio of 1:2:2, and to the reaction of propylene oxide with the resulting MRP, in



a molar ratio of 3:1, and, concomitantly, to the claimed compound. Accordingly, since claim 3 is therefore entitled to the benefit of the filing date of the parent application, we reverse the §102(b) rejection of this claim.

*Reversed*

Miller, Judge, dissenting.

As the majority opinion recognizes, the function of the description of the invention requirement of 35 USC 112, first paragraph, is to insure that an inventor had possession of the claimed subject matter as of the filing date of his application.

Appellants' parent application states that their invention involves "a new class of polyols"; also, it teaches use of the "entire crude Mannich reaction product" ("without attempting to isolate the individual components thereof") as the preferred embodiment of the invention in the further reaction with alkylene oxide to form polyol compounds within that class. From this disclosure, I am persuaded that one skilled in the art would conclude that appellants were not concerned with any specific polyol compound. Indeed, practice of the preferred embodiment of the invention would yield mixtures of polyol compounds.<sup>1</sup> (This does not ignore the statement in appellants' parent application that it is within the scope of the invention to separate the crude reaction product. However, merely being "within the scope of the invention" provides no guidance to convey clearly to one skilled in the art that appellants were in possession of the presently claimed subject matter; a preferred embodiment is a reliable guide, as the majority opinion acknowledges.)

I do not see how the majority can properly conclude that, "on the facts of this case, an adequate description of the \* \* \* reactions [Mannich reaction and further reaction with alkylene oxide] is, concomitantly, an adequate description of the claimed compound," considering that the preferred embodiment in the parent application would yield an almost infinite number of different mixtures of polyol compounds. At best,<sup>2</sup> one

of ordinary skill in the art, looking at the parent's claim 2 and example III on which the majority relies, would only be guided to a mixture of polyol compounds — not to the specific claimed polyol compound.<sup>3</sup> Nor can I accept the majority's conclusion that disclosure of from 1 to 5 moles "provides adequate direction [to one skilled in the art] for using three moles of propylene oxide in example III." There is nothing in appellants' parent application that would lead one to select 3 moles, rather than 1, 2, 4, 5, or the fractions thereof. The majority's assertion that "we will assume that exactly 3 moles of propylene oxide per mole of MRP is required to produce the compound of appealed claim 3" has no evidentiary support in the record.<sup>4</sup>

The majority opinion fails to explain why or how the mere disclosure of a mole range of a reactant that would result in the formation of an almost infinite number of different mixtures of polyol compounds, depending upon the number of moles of reactant chosen, provides an adequate description in this case, while the disclosure of at least 19 possible amine reactants in *In re Ruschig*, 54 CCPA 1551, 379 F.2d 990, 154 USPQ 118 (1967), and the naming of a number of possible substituents in *Flynn v. Eardley*, 479 F.2d 1393, 178 USPQ 288 (CCPA 1973), and *Fields v. Conover*, 58 CCPA 1366, 433 F.2d 1386, 170 USPQ 276 (1971), did not. Absent an explanation, the decision of the board should be affirmed.

enablement requirement of 35 USC 112 might be satisfied, the description of the invention requirement is not. *In re DiLeone*, 58 CCPA 925, 436 F.2d 1404, 168 USPQ 592 (1971).

<sup>3</sup> The majority improperly assumes that one skilled in the art would find appellants' parent application directed to individual polyol compounds and that, therefore, a disclosure of a range of from 1 to 5 moles of alkylene oxide reactant would result in the formation of only five compounds. This ignores the fact that the preferred embodiment of the parent application calls for the entire crude Mannich reaction product which, upon further reaction with alkylene oxide, would yield an almost infinite number of different mixtures of polyol compounds.

<sup>4</sup> Although the Solicitor appears to admit that reaction of 3 moles of propylene oxide with the appropriate Mannich reaction product will yield the claimed compound, neither the examiner nor the board did so, and no disclosure in appellants' parent application supports such a conclusion. The board referred to combining propylene oxide "in an amount sufficient to obtain the pentol of claim 3," and the examiner referred to a product containing a specific mole ratio.

<sup>1</sup> It should be noted that claim 1 (also dependent claim 2), for example, recites "polyol." However, the claims actually are to polyol compounds.

<sup>2</sup> Also noteworthy is the lack of direction (to one skilled in the art) of how to select the correct phenolic compound as an initial reactant. Appellants have admitted that some experimentation would be involved. Thus, although the

supra at 607, 85 USPQ at application of claim a word-by-word cor- t by itself enough to est- at." 7 Deller's Walker on '4 (2d ed. 1972) (footnote ough it is the claim alone the scope of a patent which are not free from t be interpreted solely ac- lictionary" meaning, but d by reference to the "art hich the claimed subject Application of Salem, 553 193 USPQ 513, 518 or that purpose, a court l from consulting the cLaren v. B-I-W Group, 2d at 1372, 190 USPQ at

these principles, Armor little, if anything, by its cross-examination. The ard testimony on literal fore, did not abuse his ng short an inquiry that m in his factfinding role. l no prejudicial error in trial below, we hold that t been deprived of a "full n the issues submitted to gment confirming the ar- affirmed.

## Court of Customs and Patent Appeals

In re Herschler

No. 78-548

Decided Feb. 1, 1979

### PATENTS

#### 1. Affidavits — In general (§12.1)

Patent and Trademark Office's physical possession of original affidavit at time of Board of Appeals' decision makes further verification unnecessary.

#### 2. Applicants for patent — In general (§14.1)

##### Pleading and practice in Patent Office — Rules effect (§54.9)

Inventorship of great-grandparent application was not effectively amended by Patent and Trademark Office's acquiescence in accepting sole inventorship of grandparent, nor was great-grandparent amended nunc pro tunc by submission of copies of Rule 45 papers.

#### 3. Specification — In general (§62.1)

##### Specification — Claims as disclosure (§62.3)

##### Specification — Sufficiency of disclosure (§62.7)

Function of description requirement is to ensure that inventor had possession, as of filing date of application relied upon, of specific subject matter later claimed by him; how specification accomplishes this is not material; claimed subject matter need not be described in haec verba to satisfy description requirement; it is not necessary that application describe claim limitations exactly, but only so clearly that one having ordinary skill in pertinent art would recognize from disclosure that applicant invented processes including those limitations.

#### 4. Specification — Sufficiency of disclosure (§62.7)

Written description of class of compounds must provide measure of predictability for utility described for that class.

#### 5. Pleading and practice in Patent Office — Rejections (§54.7)

It is incumbent, in first instance, for Patent and Trademark Office to give reasons why written description is insufficient.

#### 6. Specification — Sufficiency of disclosure (§62.7)

Known steroids, when considered as class of compounds carried through layer of skin by DMSO, is not so large that single example in specification could not describe varied members with their further varied properties.

#### 7. Specification — Sufficiency of disclosure (§62.7)

Court of Customs and Patent Appeals maintains line first clearly drawn in In re Fuetterer, 138 USPQ 217, where it found written description requirement to be satisfied where claims were drawn to rubber stock composition useful in producing tire treads, included recitation of inorganic salt capable of maintaining homogeneous distribution of another component in composition, and disclosure listed function described and four members of class having that function.

#### 8. Claims — Specification must support (§20.85)

##### Specification — Sufficiency of disclosure closure (§62.7)

Principles stated in In re Driscoll, 195 USPQ 434, In re Ruschig, 154 USPQ 118, and In re Fried, 136 USPQ 429, concerning application with claims either to intermediate classes of new compounds per se or claims drawn to processes using those new compounds are still alive and well.

#### 9. Specification — Sufficiency of disclosure (§62.7)

Claims drawn to use of known chemical compounds in manner auxiliary to invention must have corresponding written description only so specific as to lead one having ordinary skill in art to that class of compounds; occasionally functional recitation of those known compounds in specification may be sufficient as that description.

#### 10. Patentability — Evidence of — State of art (§51.467)

Papers presented to New York Academy of Sciences could, where there is prima facie showing of obviousness to rebut, if properly presented, indicate wide-scale acceptance in art and provide secondary consideration capable of overcoming 35 U.S.C. 103 rejection.

### Particular patents — Tissue Penetration

Herschler, Enhancing Tissue Penetration of Physiologically Active Steroidal Agents with DMSO, rejection of claims 1-5 and 9-13 reversed.

### Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Robert J. Herschler, Serial No. 304,283, filed Nov. 6, 1972, division of application, Serial No. 69,155, filed Sept. 2, 1970, continuation-in-part of application, Serial No. 753,231, filed Aug. 16, 1968, continuation-in-part of application, Serial No. 329,151, filed Dec. 9, 1963. From decision rejecting claims 1-5 and 9-13, applicant appeals. Reversed.

Stanley M. Teigland, San Francisco, Calif., for appellant.

Joseph F. Nakamura (Fred W. Sherling and Ernest G. Therborn, of counsel) for Commissioner of Patents and Trademarks.

Before Rich, Baldwin, and Miller, Associate Judges, and Kashiwa,\* and Ford,\*\* Judges.

Baldwin, Judge.

This appeal is from the decision of the Patent and Trademark Office (PTO) Board of Appeals (board) affirming the rejection of claims 1-5 and 9-13 in appellant's application serial No. 304,283,<sup>1</sup> filed November 6, 1972, for "Enhancing Tissue Penetration of Physiologically Active Steroidal Agents with DMSO."<sup>2</sup>

The board affirmed the examiner's rejection of all claims under 35 USC 103 as un-

patentable over Lubowe in view of Faust, Marson or Brown. The board also affirmed a rejection, first entered pursuant to its authority under 37 CFR 1.196(b),<sup>3</sup> of each of the claims under 35 USC 102(b) or 103 over Stroughton et al., Stroughton or Kligman.<sup>4</sup> We reverse.

### The Invention

The appellant has found that DMSO enhances the penetration of a number of materials through skin tissue. In the application at hand, a mixture of DMSO and a "physiologically active steroidal agent" is administered to skin (or a mucous membrane) with the result that the steroid penetrates the membrane. The claimed process provides such advantages as the elimination of injection by needle and the ability to administer localized doses of the drug without resort to a systemic dose.

Claim 1 is typical of the invention:

1. A method of enhancing the penetration into and across an external membrane barrier of a human or animal subject of a physiologically active steroidal agent capable of eliciting a physiological effect upon topical application thereof, which comprises the concurrent topical administration to the external membrane of an amount of said steroidal agent effective to produce the desired physiological effect and an amount of DMSO sufficient to effectively enhance penetration of said steroidal agent to achieve the desired physiological effect.

### The Prior Art

The following references were relied upon to support the rejection under §103:

Lubowe Patent No. 2,942,008 issued on June 21, 1960.

Brown et al., "A Note on the Toxicity and Solvent Properties of Dimethyl Sulfoxide."

<sup>3</sup> 37 CFR 1.196(b) provides, in pertinent part, that:

(b) Should the Board of Appeals have knowledge of any grounds not involved in the appeal for rejecting any appealed claim, it may include in its decision a statement to that effect with its reasons for so holding, which statement shall constitute a rejection of the claims.

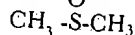
<sup>4</sup> These references were not part of the certified record transmitted to the court. However, appellant admits in his brief that the rejection is proper if the great-grandparent lacks a written description of the invention in issue. The contents of the references need not be considered.

\* The Honorable Shiro Kashiwa of the United States Court of Claims, sitting by designation.

\*\* The Honorable Morgan Ford of the United States Customs Court, sitting by designation.

<sup>1</sup> This application is a division of serial No. 69,155, filed September 2, 1970, now U.S. 3,711,606, which in turn is a continuation-in-part of serial No. 753,231, filed August 16, 1968, now U.S. 3,551,554, which is a continuation-in-part of application serial No. 329,151 (hereafter the "great-grandparent"), filed December 9, 1963, now abandoned.

<sup>2</sup> Dimethyl sulfoxide (hereinafter DMSO) is a water-clear, water-miscible, hygroscopic, neutral organic liquid, melting at about 18°C. and boiling at about 189°C. It is a well-known industrial solvent represented by the following formula:



pc  
ve,  
ch  
sol  
ha  
coi  
nu  
ma  
pos  
dic  
sull  
sho  
tro  
witl  
B  
in v  
solu  
F  
effec  
as a  
M  
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pone  
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ypical of the invention:

od of enhancing the penetra- d across an external mem- r of a human or animal sub- ysiologically active steroidal e of eliciting a physiological topical application thereof, rises the concurrent topical n to the external membrane of said steroidal agent effec- ce the desired physiological amount of DMSO sufficient enhance penetration of said nt to achieve the desired effect.

references were relied upon rejection under §103:

nt No. 2,942,008 issued on 960.

"A Note on the Toxicity and operties of Dimethyl Sulfox-

6(b) provides, in pertinent part,

the Board of Appeals have any grounds not involved in the ting any appealed claim, it may ecision a statement to that effect : for so holding, which statement : a rejection of the claims.

ices were not part of the certified ted to the court. However, in his brief that the rejection is at-grandparent lacks a written invention in issue. The contents need not be considered.

ide," 15 J. Pharm. Pharma. Col. 688-692 (Oct. 1963).

Faust, "Some New Components for Cosmetic and Dermatologic Vehicles," 77 American Perfumer 23-26 (Jan. 1962).

Marson, "Il Dimetilsolfossido Solvente Aquo-Mimetico," 102 Boll. Chemicofarm. 109-124 (Feb. 1963).

Lubowe is a patent directed to compositions with large amounts of mineral, vegetable or animal oils solubilized in short chain alcohols. The oils are maintained in solution by the addition of fatty alcohols having 10 to 24 carbon atoms. The resulting compositions may be used as a base in a number of further cosmetic and pharmaceutical compositions. When the composition is used in a hair lotion, Lubowe indicates that "estrogenic hormones; methyl sulfoxide" may be added. Example XII shows a hair lotion containing 0.1% estrogenic hormone in 50% ethyl alcohol but without DMSO.

Brown et al. shows DMSO to be a solvent in which many classes of compounds are soluble and, further, is of low toxicity.

Faust suggests that DMSO is a "safe and effective solubilizing" agent suitable for use as a cosmetic or dermatologic vehicle.

Marson cites Faust saying "the cosmetic literature has recently cited its [DMSO's] employment as simple, non-gelated components of dermatological vehicles" and describes the usefulness of DMSO in preparing pharmaceutical compositions containing, inter alia, the thickening agents such as recited in the claims.

#### Background

The examiner indicated in the Final Rejection and in his Answer that the claims were rejected under 35 USC 103 since "the Lubowe patent describes, inter alia, DMSO added to Ex. XII, an anti-seborrheic hair lotion containing 1/10 part by weight of estrogenic hormone," and that, "we have, inherently, the same process involved here as described in Lubowe, notwithstanding applicant's observation of percutaneous absorption from the DMSO (apparently added as a vehicle or solvent, according to Faust, Marson or Brown)."

The board, in a first opinion, agreed with the Examiner's position and amplified it, stating:

We note that the secondary references make it clear that DMSO is an effective solubilizing agent for various drugs, in-

cluding those to be applied topically and along with the examiner we emphasize that "... an amount of DMSO sufficient to effectively enhance penetration ..." of the steroid is also an amount effective for solubilization of the steroid; compare with page 19 of the specification. Therefore, we find that it would be obvious to add DMSO to the steroid containing formulation of Example XII of Lubowe in amounts large enough to enhance penetration of said steroid, in view of the teachings of the secondary references regarding DMSO's utility as a solvent for topical drug formulations.

The board made an additional rejection:

Under the provisions of 37 CFR 1.196(b) we make new grounds of rejection under 35 USC 102(b) and 35 USC 103 against claims 1 to 5 and 9 to 13.

Claims 1 to 5 and 9 to 13 are rejected under 35 USC 102 and 35 USC 103 as unpatentable over any one of Stoughton et al., Stoughton or Kligman. All of the above publications were made of record by appellant's counsel in Paper No. 6 of great-grandparent case Serial No. 329,151 filed December 9, 1963. The above articles were described in detail by appellant's counsel in said Paper No. 6 (pages 8 to 12) and we will not, therefore, elaborate on the disclosure of the articles. It is sufficient to note that each of the articles teaches the enhanced penetration of various steroids resulting from topical application of DMSO concurrently with the steroid — the heart of appellant's inventive concept. All of the above articles were published in 1964 or 1965, more than one year prior to the filing date of appellant's grandparent case Serial No. 753,231, filed August 16, 1968. Hence the articles are statutory bars against the present claims under 35 USC 102(b) and 103 unless appellant's claimed invention was described in great-grandparent case Serial No. 329,151 filed December 9, 1963; see 35 USC 120 and 35 USC 112, first paragraph.

We have carefully considered the great-grandparent case but the only disclosure relating to steroids (pages 34-35) is limited to glucocorticosteroids whereas all of the present claims on appeal are drawn either to steroids in general or to steroids not limited to glucocorticosteroids (claims 4-5). It is now well settled law that disclosure of a species is insufficient to provide descriptive support for a generic or sub-generic claim; In re Ruschetta et al., 45 CCPA 968, 255 F.2d



687, 118 USPQ 101 (1958), *In re Lukach*, 58 CCPA 1233, 442 F.2d 967, 169 USPQ 795 (1971) and *In re Smith*, 59 CCPA 1025, 458 F.2d 1389, 173 USPQ 679 (1972).

Hence, appellant may not rely upon his great-grandparent case to support any of the claims on appeal and thus the above articles are prior art and can be properly applied against the claims under 35 USC 102(b) and 103. We note also that the great-grandparent case was filed in the name of Jacob and Herschler, whereas the present case was filed by Herschler alone. Since the inventive entities are different, we do not see how appellant can claim priority under 35 USC 120 based upon the great-grandparent case; note the requirement that the applications be "... filed by the same inventor ..."

[Emphasis in original.]

Appellant thereupon submitted a Request for Reconsideration accompanied by two attachments and requested that the examiner consider them. The first attachment was a portion of a 508 page collection of papers given at a conference entitled Conference on Biological Actions of Dimethyl Sulfoxide held by the New York Academy of Sciences in 1974. The second enclosure was a copy of a Rule 45 declaration<sup>5</sup> submitted in the great-grandparent application purporting to amend the inventorship from Jacob and Herschler joint to Herschler sole.

In support of the Rule 45 affidavit, appellant argued:

With respect to the first reason, submitted herewith are copies of papers filed under Rule 45 in the great-grandparent application, and a copy of a postcard receipt indicating that the papers were

received by the Patent Office. The papers include an amendment under Rule 45 to change the inventorship of the great-grandparent application to correspond to the inventorship of this application. No notice was received that entry of the amendment was refused. Moreover, the Rule 45 papers were filed simultaneously with a continuing application in the name of the new inventorship and the Patent Office accorded continuation-in-part status to the application, which issued as U.S.P. 3,551,554. Hence, it is evident that the examiner considered the papers filed under Rule 45 and acknowledged that they were legally sufficient to change the inventorship. However, if the examiner believes it is necessary to formally change the inventorship of the great-grandparent application, he is invited to enter the Rule 45 amendment *nunc pro tunc*.

Appellant further argued that the written description in the great-grandparent was adequate for the subgenus now claimed:

As clearly indicated in the great-grandparent application, appellant recognized from the start that the invention was applicable to physiologically active agents in general. \* \* \* Thus, the Board's contention that "the only disclosure [in the great-grandparent application] relating to steroids is limited to glucocorticosteroids" is incorrect. The great-grandparent application discloses that the invention is applicable to the genus of physiologically active agents, which includes the important subgenus of steroids. A working example illustrates practice of the invention with a corticosteroid, which, of course, is a species of the subgenus of steroids. Hence, the great-grandparent application, in teaching the applicability of the invention to the genus of physiologically active agents in general, and to the species corticosteroids in particular, quite naturally describes to one skilled in the art the applicability of the invention to the subgenus of steroids. Since a corticosteroid is obviously a type of steroid, and since the word "corticosteroid" contains the very word "steroid", the corticosteroid in the working example, in view of the applicability of the invention to physiologically active agents in general, clearly represents to one skilled in the art the subgenus of steroids. There is no other subgenus that it would reasonably represent.

<sup>5</sup> Rule 45(b) of the Rules of Practice in Patent Cases provided, at the time of the affidavit in issue (1965), that:

(b) If an application for patent has been made through error and without any deceptive intention by two or more persons as joint inventors when they were not in fact joint inventors, the application may be amended to remove the names of those not inventors upon filing a statement of the facts verified by all of the original applicants, and an oath or declaration as required by rule 65 by the applicant who is the actual inventor, provided the amendment is diligently made. Such amendment must have the written consent of any assignee.

Patent Office. The papers amendment under Rule 45 to inventorship of the instant application to correspond to the inventorship of this application was received that entry of it was refused. Moreover, 5 papers were filed with a continuing application of the new inventorship. The Patent Office accorded no status to the application as U.S.P. 3,551,554. It is evident that the examiner believed that the papers filed under Rule 45 changed that they were legally change the inventorship. The examiner believes it is not normally change the inventorship of a great-grandparent application to enter the Rule 45 amendment *pro tunc*.

He argued that the written description of the great-grandparent was subgenus now claimed:

claimed in the great-grandparent application, appellant recognized that the invention was physiologically active agents

\* Thus, the Board's conclusion that the only disclosure [in the instant application] relating to the invention is limited to glucocorticosteroids is incorrect. The instant application discloses that the invention is applicable to the class of physiologically active agents, and to the species of corticosteroids, and to the species of corticosteroids, quite naturally one skilled in the art of the invention to the subgenus. Since a corticosteroid is a species of steroid, and since the "steroid" contains the very "corticosteroid" in the instant application, in view of the fact that the invention to the class of physiologically active agents in general, and to one skilled in the art of steroids. There is no other way it would reasonably repre-

The collection of papers submitted to the New York Academy of Sciences was said to demonstrate that "in view of the interest in DMSO generated by appellant's discovery, as shown by this reference, the discovery was truly a pioneering breakthrough in medical science." And further, that the papers describing work by:

Kligman and others with just a few different species of steroids [show], that DMSO enhances the penetration of steroids in general. This same conclusion would similarly be drawn by one skilled in the art from the disclosure in appellant's great-grandparent application. Thus, the great-grandparent application describes to one skilled in the art the invention claimed in this application.

The board remanded the application to the examiner for consideration of the appended paper. In a supplemental Answer, the examiner stated:

The Examiner respectfully declines the invitation to either now enter, *nunc pro tunc*, in an abandoned application, or to even consider what precisely Stanley Jacob did, or not, co-invent, in unverified copies of submitted purported Rule 45 amendment papers, which papers, even if not untimely, are unclear: ("various embodiments", "several additional embodiments", "I was informed on July 18, 1968 that I was not a coinventor", etc.), and considers them not relevant or sufficiently precise to any specific issues herein of whether or not he did not in fact co-invent the applicable portions of S.N. 329,151, filed jointly with him, which relate to DMSO topically applied with a species of glucocorticosteroid \* \* \*. [Furthermore, the board expressly states that] "we have carefully considered," but they found, (and appellant has not denied,) that its only disclosure relating to steroids (pages 34-35) is limited to the single species of glucocorticosteroids, whereas *all* of the present claims on appeal are drawn either to steroids in general, or to steroids not limited to glucocorticosteroids (claims 4-5), and the Board of Appeal [sic] held it to be now well settled law that disclosure of a species is insufficient to provide descriptive support for a generic or sub-generic claim, citing the Ruscetta et al, Lukach and Smith decisions. Assuming, *arguendo*, that the precise inventorship of said glucocorticosteroid species and DMSO is established as not involving a different in-

ventorship question; the question remains, for review under 35 USC 141 or 145, where, in S.N. 329,151, is described the steroid genus or subgenus, now claimed? [Emphasis in original.]

The application was then returned to the board. Appellant filed another request for reconsideration reiterating the comments and arguments made in the earlier request.

The board's final opinion indicated that:

We agree with the Examiner that the unverified and unclear papers purportedly filed under 37 CFR 1.45 do not establish that the inventorship of 329,151 and that of the instant case are the same.

We have carefully reconsidered our new ground of rejection under 35 USC 102(b) and 103 over the newly cited art but we are convinced that the rejection is sound. Apart from the different inventive entities of 329,151 and the instant case we remain of the view that there is no description [in] 329,151 of the process as applicable to steroids. In *In re Smith*, 178 USPQ 620 (1973), there was also a description in the parent case of a broad genus and a particular species, yet the CCPA held that there was insufficient descriptive support for a subgeneric claim similar to the present subgenus claims drawn to steroids. We do not see how an article published in 1974 or 1975 can aid appellant in overcoming the deficiencies in disclosure of an application filed December 9, 1963. The fact remains that nowhere in Serial No. 329,151 is there any mention of the term "steroids," let alone a description of the claimed process as applicable to steroids as a class.

We reiterate our position that claims 1 to 5 and 9 to 13 are obvious over Lubowe in view of any one of Faust, Marson or Brown under 35 USC 103. We do not agree with appellant that it would not be obvious to solubilize steroids (such as the estrogenic hormone in Example XII of Lubowe) with DMSO. As explained by the Examiner in his answer, the secondary references make it clear that DMSO is an effective solubilizing agent for various drugs, including those to be applied topically. We emphasize again that "... an amount of DMSO sufficient to effectively enhance penetration..." of the steroid is also an amount effective for solubilization of the steroid. We therefore find clear motivation from the teachings of the prior art to solubilize steroids intended for topical application by adding DMSO to steroid formulations in an

amount sufficient to solubilize components of the steroid formulation. The fact that appellant may use DMSO for a different purpose (as compared to the prior art teachings that DMSO solubilizes drugs to be applied topically) does not alter the conclusion that its concomitant use with topically applied drugs such as estrogen would be *prima facie* obvious from the purpose disclosed in the references; *In re Lintner*, 173 USPQ 560, 562 (CCPA 1972).

### Opinion

35 USC 102(b)/103 Rejection over *Stroughton et al.*, *Stroughton or Kligman*

As noted above, appellant concedes that the substance of this rejection is proper if the court finds either the great-grandparent application lacks a written description of the instant invention<sup>6</sup> or the inventorship of the great-grandparent application differs from the one on appeal. The analysis need only consider those two points.

#### Rule 45 Affidavit

[1] The board found that the "unverified" and unclear papers \* \* \* do not establish that the inventorship of 329,151 and that of the instant case are the same." We do not agree.

Jacob's affidavit indicated that he learned of the invention from the appellant:

Herschler disclosed at this meeting his conception of the invention of enhancing tissue penetration of physiologically active agents by applying them to animal tissue (both topically and internally) together with DMSO and his reduction to practice of various embodiments of this invention. Herschler requested at this meeting that my group test various additional embodiments of this invention for him.

<sup>6</sup> We assume, in the absence of any argument to the contrary, that the parent and grandparent applications contain the necessary written description of the invention on appeal. See *In re de Seversky*, 474 F.2d 671, 177 USPQ 144 (CCPA 1973).

<sup>7</sup> It is not altogether clear what is meant by "unverified" in referring to the copy of the affidavit submitted to the examiner. The PTO had physical possession of the original affidavit at the time of the board decision as is evidenced by a certified copy thereof in the transcript submitted to the court. Further verification seems unnecessary.

and that his participation "concerning the invention disclosed and claimed in application Serial No. 329,151 was limited to assisting in further testing of the invention with such additional pharmacologically active agents."

Although the affidavit is somewhat vague regarding specific acts done by the affiant, it is quite clear that he derived all information pertinent to the disclosed invention from Herschler and acted only under Herschler's direction. The affidavit is consistent with a finding that Jacob was not an inventor in the great-grandparent application. The accompanying affidavit of Herschler (ratifying the statement of Jacob), in conjunction with the originally filed application papers, leads us to the conclusion that Herschler believes himself to be the inventor of the matter disclosed and claimed in the great-grandparent application.

[2] This is not to say that we agree with appellant that the inventorship of the great-grandparent application was effectively amended by the PTO's acquiescence in accepting the sole inventorship of the grandparent nor do we agree that the great-grandparent was amended *nunc pro tunc* by the submission of copies of the Rule 45 papers. We consider the affidavits sufficient, for the purpose of claiming priority under §120, to demonstrate that Jacob was joined as a coinventor through error without deceptive intent. *Weil v. Fritz*, 572 F.2d 856, 196 USPQ 600 (CCPA 1978); *In re Schmidt*, 48 CCPA 1140, 293 F.2d 274, 130 USPQ 404 (1961).

#### Written Description in the Great-Grandparent

The appealed claims recite a subgenus, i.e., physiologically active steroidal agents, not found in *haec verba* in the great-grandparent application.

Appellant emphasizes the following quotation found in the great-grandparent specification and argues that it clearly defines a genus to which the subgenus of steroids belongs:

By the term "physiologically active substance" is meant any substance which has a demonstrable and desired physiological activity in the sense that animal tissue responds thereto. This may be an altered physiologic phenomenon following heparin administration; a pharmacological activity such as local anesthesia; an antibacterial activity following administration of antibiotics; a bacteriostatic activity following the administration of iodine; a growth stimula-

icipation "concerning the ed and claimed in applica- 329,151 was limited to her testing of the invention onal pharmacologically ac-

affidavit is somewhat vague c acts done by the affiant, it t he derived all information : disclosed invention. from ted only under Herschler's fidavit is consistent with a b was not an inventor in the it application. The accom- of Herschler (ratifying the b), in conjunction with the plication papers, leads us n that Herschler believes inventor of the matter dis- ed in the great-grandparent

t to say that we agree with the inventorship of the it application was effective- the PTO's acquiescence in e inventorship of the grand- agree that the great-grand- ded nunc pro tunc by the pies of the Rule 45 papers. affidavits sufficient, for the ing priority under §120, to t Jacob was joined as a gh error without deceptive Fritz, 572 F.2d 856, 196 'A 1978); In re Schmidt, 48 F.2d 274, 130 USPQ 404

#### *n in the Great-Grandparent*

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n "physiologically active neant any substance which nstrable and desired activity in the sense that esponds thereto. This may physiologic phenomenon in administration; a phar- activity such as local n antibacterial activity nistration of antibiotics; a activity following the ad- iodine; a growth stimula-

tion activity following usual access to dietary sources, and the like. The term is intended to include any desirable pharmacological action with compounds alien to animal tissue, and any physiological activity with compounds normally occurring in animal tissue. It is also meant to include within the term "physiologically active substance" materials which are diagnostic tools such as radiopaque agents (for instance, iodine), dyes and the like.

That application exemplifies a single species within the terms of claim 1 of this appeal:

#### Example 30

##### *Penetration of Corticosteroids*

A twenty-four year old medical student was seen with atopic dermatitis of the right antecubital fossa. Three cc. of 100% dimethyl sulfoxide were applied four times daily for three days. No benefit was noted. One mg. or 1/4 cc. of Decadron (dexamethasone 21-phosphate) was applied four times a day for two days without benefit. One mg. of dexamethasone 21-phosphate in 3 cc. of 100% dimethyl sulfoxide was painted onto the involved area four times daily for three days. At the end of this period all evidence of the inflammatory reaction had disappeared.

This example shows an improved action of dexamethasone 21-phosphate when used with dimethyl sulfoxide.

No other language in that specification specifically discusses topical application of a steroid-containing composition.

However, the remaining examples are awesome in their diversity. The scope of exemplified "physiologically active substances" includes iodine (Example 1), pressed pellet feed for rats (Example 4), penicillin (Example 10), procaine (Example 16), various chemotherapeutic agents (Examples 17 & 18), barbiturates (Example 19), oral insulin (Example 21), antihistamines (Example 29), various local anesthetics (Examples 34 & 35), etc.

[3] The function of the description requirement is to ensure that the inventor had possession of, as of the filing date of the application relied upon, the specific subject matter later claimed by him; how the specification accomplishes this is not material. In re Smith, 481 F.2d 910, 178 USPQ 620 (CCPA 1973). The claimed subject matter need not be described in haec

verba to satisfy the description requirement. In re Smith, 59 CCPA 1025, 458 F.2d 1389, 173 USPQ 679 (1972). It is not necessary that the application describe the claim limitations exactly, but only so clearly that one having ordinary skill in the pertinent art would recognize from the disclosure that appellants invented processes including those limitations. In re Smythe, 480 F.2d 1376, 178 USPQ 279 (CCPA 1973).

The question is simple: does the array of information supplied by appellant in the great-grandparent application teach one having ordinary skill in this art that one of the class of steroids will operate in the claimed process. We conclude that it does.

[4, 5, 6] A toehold on the problem is found in In re Cook, 58 CCPA 1049, 439 F.2d 730, 169 USPQ 298 (1971). The written description of a class of compounds must provide a measure of predictability for the utility described for that class. That is to say: would the worker of ordinary skill in this art consider "steroidal agents" to be operative when considering the great-grandparent's disclosure? It is incumbent, in the first instance, for the PTO to give reasons why he would not. In re Wertheim, 541 F.2d 257, 263, 191 USPQ 90, 98 (CCPA 1976). The solicitor urges that the class of steroids is so large that a single example in the specification could not describe the varied members with their further varied properties. We disagree with this contention. Steroids, when considered as drugs, have a broad scope of physiological activity. On the other hand, steroids, when considered as a class of compounds carried through a layer of skin by DMSO, appear on this record to be chemically quite similar. The diversity of exemplified materials "potentiated" by DMSO in the great-grandparent application, is much broader than the diversity of steroid compounds shown contemporaneously in the art.<sup>4</sup> In this instance, we conclude that one having ordinary skill in this art would have found the use of the subgenus of steroids to be apparent in the written description of the great-grandparent application.

Were this application drawn to novel "steroidal agents," a different question would be posed.

[7] We wish to maintain the line first clearly drawn in In re Fuetterer, 50 CCPA 1453, 319 F.2d 259, 138 USPQ 217 (1963).

<sup>4</sup> See, e.g., Kirk-Othmer, "Sterols and Steroids," 12 Encyclopedia of Chemical Technology 917-947 (1st Ed. 1954).



There, claims drawn to a rubber stock composition useful in producing tire treads included a recitation of "an inorganic salt capable" of maintaining an homogeneous distribution of another component in the composition. The disclosure listed the function desired and four members of the class having that function. This court found the written description requirement to be satisfied:

Appellant's invention is the *combination* claimed and not the discovery that certain inorganic salts have colloid suspending properties. We see nothing in patent law which requires appellant to discover which of all those salts have such properties and which will function properly in his combination. The invention description clearly indicates that any inorganic salt which has such properties is usable in his combination. If others in the future discover what inorganic salts additional to those enumerated do have such properties, it is clear appellant will have no control over them per se, and equally clear his claims should not be so restricted that they can be avoided merely by using some inorganic salt not named by appellant in his disclosure.

We are not persuaded that our conclusion on this point is wrong by decisions of this and other courts relating to the sufficiency of invention disclosures in cases wherein the applicant is claiming chemical *compounds* per se. [Emphasis in original.]

[8] *Id.* at 1462, 319 F.2d at 265-266, 138 USPQ at 223. Applications with claims either to intermediate classes of *new compounds* per se or claims drawn to processes using those *new compounds* have been considered by this court on other occasions. In *re* Driscoll, 562 F.2d 1245, 195 USPQ 434 (CCPA 1977); In *re* Ruschig, 54 CCPA 1551, 379 F.2d 990, 154 USPQ 118 (1967); In *re* Fried, 50 CCPA 954, 312 F.2d 930, 136 USPQ 429 (1963). The principles stated therein are still alive and well.

[9] In sum, claims drawn to the *use* of *known* chemical compounds in a manner auxiliary to the invention must have a corresponding written description only so specific as to lead one having ordinary skill in the art to that class of compounds. Occasionally, a functional recitation of those known compounds in the specification may be sufficient as that description. In *Fuetterer* and here, such is the case.

*35 USC 103 Rejection over Lubowe in view of Faust, Marson or Brown*

Throughout the Lubowe patent, DMSO is mentioned only once, and that occurs in the statement that DMSO, as well as many other enumerated compounds, may be added to hair lotion preparations containing a solubilized oil. There is no indication of why the DMSO would be added; nor is there any teaching that there is any relationship between DMSO and estrogenic hormones (which are steroids), let alone a suggestion to employ them in combination. The board relies upon the secondary references to show "that DMSO is an effective solubilizing agent for various drugs, including those to be applied topically" and accordingly finds it obvious to utilize DMSO in Lubowe's Example XII. Such a conclusion is not supported by the record, because, as appellant notes, "the formulation of [Lubowe's] Example XII is already a clear solution containing more solvent than anything else. Moreover, the alcohol solvent employed in Lubowe is also a solvent for steroids." Hence, there would have been no reason for one skilled in the art to add any additional solvent to Lubowe's formulations, particularly a totally different solvent "in any amount large enough to enhance penetration," as required by the claims. Nor would it have been obvious to one skilled in the art to substitute DMSO for a portion of the exemplified alcohols, since Lubowe's invention is directed to the use of specific combinations of alcohols in the disclosed formulations.

While the secondary references may teach that DMSO is generally useful as a solvent, there is no suggestion or teaching in any of them to combine it with a steroid — that is, to choose DMSO from among the countless number of solvents as the solvent for steroids.

[10] Appellant argues that Brown, by stating that DMSO is "not known to interfere with absorption or metabolism," is a teaching not to use DMSO. The solicitor, on the other hand, characterizes the same quotation by saying that "it is not clear how this teaching is a teaching away \* \* \* [and, accordingly] there should be no surprise [sic] that DMSO enhances penetration." Even though that quotation from Brown cannot be said to be an overwhelming suggestion to use DMSO for any solvent-type utility, we do not see how it provides any motivation for one skilled in the art to use DMSO in the formulation of Lubowe. The references do not provide any impetus to do what appellant has done nor do they provide the

### 33 Rejection over Lubowe in view of son or Brown

out the Lubowe patent, DMSO ed only once, and that occurs in ent that DMSO, as well as many erated compounds, may be add- lution preparations containing a oil. There is no indication of why would be added; nor is there any hat there is any relationship MSO and estrogenic hormones steroids), let alone a suggestion hem in combination. The board the secondary references to show SO is an effective solubilizing arious drugs, including those to topically" and accordingly finds utilize DMSO in Lubowe's Ex-

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art with the knowledge that DMSO enhances penetration of "steroidal agents" through a membrane."

#### Summary

We reverse the decision of the board, which decision affirmed a rejection of the claims both under 35 USC 102 and 103.

Reversed.

#### District Court, C. D. California

Bohsei Enterprises Company, U.S.A.  
v. Porteous Fastener Company, et al.

No. CV 77-1241

Decided Nov. 16, 1977

#### TRADEMARKS

##### 1. Fraud and misrepresentation (§67.37)

Court in Alfred Dunhill Ltd. v. Interstate Cigar Co., Inc., 183 USPQ 193, did not decide that omission was not cognizable under Lanham Act.

##### 2. Fraud and misrepresentation (§67.37)

Law of false representation includes omission of material fact of origin that affirmatively says in context in which fasteners are sold "I am a product of the United States"; concern over materiality of such omission particularly in context of imported goods was expressed by Congress when it enacted 19 U.S.C. 1304 requiring imported articles to be "marked in a conspicuous place as legible, indelibly, and permanently as the nature of the article (or container) will permit in such manner as to indicate to an ultimate purchaser \* \* \* the country of origin of the article"; to hold that omission of such material fact is not such false

\* We do not find it necessary to reach the question of the weight to be given the papers presented to the New York Academy of Sciences in that appellant has no prima facie showing of obviousness to rebut. Were such a showing appropriate, these papers could, if properly presented, indicate wide-scale acceptance in the art and provide a secondary consideration capable of overcoming a §103 rejection.

representation as to affect competition of sale to detriment of seller who complies with mandate of 19 U.S.C. 1304 requires utterly naive view of realities of market place; more importantly, it would promote disregard for provisions of 19 U.S.C. 1304; experience has taught courts that concept of private attorney general has been vigorous and needed method for protection of competition under antitrust law; to eschew the justice that experience has shown courts by a judicial narrowing of concept of fraud and deceit since it is embodied in Lanham Act would be pure legal folly and must be rejected.

Action by Bohsei Enterprises Company, U.S.A., against Porteous Fastener Co., Russell, Burdsall & Ward, Inc., Rockford Screw Products of California, Lamson & Sessions, Inc., and ITT Harper, Inc., for Lanham Act violations, and unfair competition. On defendants' motions to dismiss. Motions denied.

Ervin, Cohen & Jessup, Beverly Hills, Calif., for plaintiff.

Thorpe, Sullivan, Workman, Thorpe & O'Sullivan, Los Angeles, Calif., for Porteous Fastener Company.

Sullivan & Cromwell, New York, N.Y., and Lillick, McHose & Charles, Los Angeles, Calif., for Russell, Burdsall & Ward, Inc.

Glad, Tuttle & White, Los Angeles, Calif., for Rockford Screw Products of California.

Thorpe, Sullivan, Workman, Thorpe & O'Sullivan, Los Angeles, Calif., for Lamson & Sessions, Inc.

Powers & Tilson, Los Angeles, Calif., for ITT Harper, Inc.

Real, District Judge.

The defendants have variously moved for dismissal of the action brought by plaintiff. More specifically the motions are:

1. By defendant Rockford Screw Products of California (hereafter Rockford) — Motion for Judgment on the Pleadings.
2. By defendant Russell, Burdsall & Ward, Inc. (hereafter Russell) — Motion to Dismiss.
3. By defendant ITT Harper, Inc., (hereafter ITT) — Motion to Dismiss, Strike and for More Definite Statement.

Plaintiff Bohsei Enterprises Company, U.S.A. (hereafter Bohsei) is in the business

ensures that the public receives something in return for the exclusionary rights that are granted to the inventor by a patent. The grant of a patent helps to foster and enhance the development and disclosure of new ideas and the advancement of scientific knowledge. Upon the grant of a patent in the U.S., information contained in the patent becomes a part of the information available to the public for further research and development, subject only to the patentee's right to exclude others during the life of the patent.

In exchange for the patent rights granted, 35 U.S.C. 112, first paragraph sets forth the minimum requirements for the quality and quantity of information that must be contained in the patent to justify the grant. As will be discussed in more detail below, the patentee must disclose in the patent sufficient information to put the public in possession of the invention and to enable those skilled in the art to make and use the invention and must not conceal from the public the best way of practicing the invention that was known to the patentee at the time of filing the patent application. Failure to fully comply with the disclosure requirements could result in the denial of a patent, or in a holding of invalidity of an issued patent.

## 2163 The Written Description Requirement

The written description requirement has several policy objectives. "[T]he 'essential goal' of the description of the invention requirement is to clearly convey the information that an applicant has invented the subject matter which is claimed." *In re Barker*, 559 F.2d 588, 592 n.4, 194 USPQ 470, 473 n.4 (CCPA 1977), cert. denied, 434 U.S. 1064 (1978). Another objective is to put the public in possession of what the applicant claims as the invention so that the public may ascertain if the patent applicant claims anything that is in common use, or already known. *Evans v. Eaton*, 20 U.S. (7 Wheat.) 356 (1822).

An applicant's specification must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, i.e., whatever is now claimed. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). The written description requirement prevents an applicant from claiming subject matter that was not described in the application as filed, and the prescription against the introduction of new matter in a patent application (35 U.S.C. 132 and 251) serves to prevent

an applicant from adding to the informational content of a patent application after it is filed.

### 2163.01 Support for the Claimed Subject Matter in Disclosure

A written description requirement issue generally involves the question of whether the subject matter of a claim is supported by [conforms to] the disclosure of an application as filed. If the examiner concludes that the claimed subject matter is not supported [described] in an application as filed, this would result in a rejection of the claim on the ground of a lack of written description under 35 U.S.C. 112, first paragraph or denial of the benefit of the filing date of a previously filed application. The claim should not be rejected or objected to on the ground of new matter. As framed by the court in *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981), the concept of new matter is properly employed as a basis for objection to amendments to the abstract, specification or drawings attempting to add new disclosure to that originally presented. While the test or analysis of description requirement and new matter issues is the same, the examining procedure and statutory basis for addressing these issues differ. See MPEP § 2163.06.

### 2163.02 Standard for Determining Compliance With the Written Description Requirement

The courts have described the essential question to be addressed in a description requirement issue in a variety of ways. An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a patent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co.*,

*Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).

Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed. The subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement. If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application. This conclusion will result in the rejection of the claims affected under 35 U.S.C. 112, first paragraph — description requirement, or denial of the benefit of the filing date of a previously filed application, as appropriate.

### 2163.03 Typical Circumstances Where Adequate Written Description Issue Arises

A description requirement issue can arise in a number of different circumstances where it must be determined whether the subject matter of a new or amended claim is supported in an application as filed. The following circumstances are typical:

#### I. AMENDMENT AFFECTING A CLAIM

An amendment to the claims or the addition of a new claim must be supported by the description of the invention in the application as filed. *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989). Original claims constitute their own description. *In re Koller*, 613 F.2d 819, 204 USPQ 702 (CCPA 1980). An amendment to the specification (e.g., a change in the definition of a term used both in the specification and claim) may indirectly affect a claim even though no actual amendment is made to the claim.

#### II. RELIANCE ON FILING DATE OF PARENT APPLICATION UNDER 35 U.S.C. 120

Under 35 U.S.C. 120, the claims in a U.S. application are entitled to the benefit of the filing date of an earlier filed U.S. application if the subject matter of the claim is

disclosed in the manner provided by 35 U.S.C. 112, first paragraph in the earlier filed application. *In re Scheiber*, 587 F.2d 59, 199 USPQ 782 (CCPA 1978).

#### III. RELIANCE ON PRIORITY UNDER 35 U.S.C. 119

Under 35 U.S.C. 119 (a) or (e), the claims in a U.S. application are entitled to the benefit of a foreign priority date or the filing date of a provisional application if the corresponding foreign application or provisional application supports the claims in the manner required by 35 U.S.C. 112, first paragraph. *In re Ziegler*, 992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993); *Kawai v. Metlesics*, 480 F.2d 880, 178 USPQ 158 (CCPA 1973); *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989).

#### IV. SUPPORT FOR A CLAIM CORRESPONDING TO A COUNT IN AN INTERFERENCE

A broad generic disclosure to a class of compounds was not a sufficient written description of a specific compound within the class. *Fields v. Conover*, 443 F.2d 1386, 170 USPQ 276 (CCPA 1970).

### 2163.04 Burden on the Examiner With Regard to the Written Description Requirement

The inquiry into whether the description requirement is met must be determined on a case-by-case basis and is a question of fact. *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). The examiner has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. 541 F.2d at 265, 191 USPQ at 98. See also *Ex parte Sorenson*, 3 USPQ2d 1462, 1463 (Bd. Pat. App. & Inter. 1987).

#### I. STATEMENT OF REJECTION REQUIREMENTS

Any time an examiner bases a rejection of a claim or the denial of the effect of a filing date of a previously filed application on the lack of a written description, the examiner should: (A) identify the claim limitation not described; and (B) provide reasons why persons skilled in the art at the time the application was filed would not have recognized the description of this limitation in the disclosure of the application as filed. A typical reason

**clear·ing** (klîr<sup>1</sup>ng) *n.* **1.** The act or process of making or becoming clear. **2.** A tract of land within a wood or other overgrown area from which trees and other obstructions have been removed. **3.** An open space: *a clearing in the fog*. **4.a.** The exchange among banks of checks, drafts, and notes and the settlement of consequent differences. **b. clearings.** The total of claims presented daily at a clearing-house.

**clear** (klîr) *adj.* **clear·er, clear·est.** **1.** Free from clouds, mist, or haze: *a clear day*. **2.** Free from what dims, obscures, or darkens; unclouded: *clear water; bright, clear colors*. **3.** Free from flaw, blemish, or impurity: *a clear, perfect diamond; a clear record with the police*. **4.** Free from impediment, obstruction, or hindrance; open: *a clear view; a clear path to victory*. **5.** Plain or evident to the mind; unmistakable: *a clear case of cheating*. **6.** Easily perceptible to the eye or ear; distinct. **7.** Discerning or perceiving easily; keen: *a clear mind*. **8.** Free from doubt or confusion; certain. **9.** Free from qualification or limitation; absolute: *a clear winner*. **10.** Free from guilt; untroubled: *a clear conscience*. **11.** Having been freed from contact, proximity, or connection: *At last we were clear of the danger. The ship was clear of the reef*. **12.** Free from charges or deductions; net: *a clear profit*. **13.** Containing nothing. **--clear** *adv.* **1.** Distinctly; clearly: *spoke loud and clear*. **2.** Out of the way; completely away: *stood clear of the doors*. **3. Informal.** All the way; completely: *slept clear through the night; read the book clear to the end*. **--clear** *v.* **cleared, clear·ing, clears.** **--tr.** **1.** To make light, clear, or bright. **2.** To rid of impurities, blemishes, muddiness, or foreign matter. **3.** To free from confusion, doubt, or ambiguity; make plain or intelligible: *cleared up the question of responsibility*. **4.a.** To rid of objects or obstructions: *clear the table; clear the road of debris*. **b. To make (a way or clearing) by removing obstructions: *clear a path through the jungle*. **c.** To remove (objects or obstructions): *clear the dishes; clear snow from the road*. **5.a.** To remove the occupants of: *clear the theater*. **b.** To remove (people): *clear the children from the room*. **6. Computer Science.** **a.** To rid (a memory or buffer, for example) of instructions or data. **b.** To remove (instructions or data) from a memory. **7.** To free from a legal charge or imputation of guilt; acquit: *cleared the suspect of the murder charge*. **8.** To pass by, under, or over without contact: *The boat cleared the dock*. **9.** To settle (a debt). **10.** To gain (a given amount) as net profit or earnings. **11.** To pass (a bill of exchange, such as a check) through a clearing-house. **12.a.** To secure the approval of: *The bill cleared the Senate*. **b.** To authorize or approve: *cleared the material for publication*. **13.** To free (a ship or cargo) from legal detention at a harbor by fulfilling customs and harbor requirements. **14.** To give clearance or authorization to: *cleared the plane to land*. **15.** To free (the throat) of phlegm by making a rasping sound. **--intr.** **1.** To become clear: *The sky cleared*. **2.** To go away; disappear: *The fog cleared*. **3.a.** To exchange checks and bills or settle accounts through a clearing-house. **b.** To pass through the banking system and be debited and credited to the relevant accounts: *The check cleared*. **4.** To comply with customs and harbor requirements in discharging a cargo or in leaving or entering a port. **--clear** *n.* A clear or open space. **--phrasal verb.** **clear out.****

*Informal.* To leave a place, usually quickly. --**idioms.** **clear the air.** To dispel differences or emotional tensions. **in the clear.** 1. Free from burdens or dangers. 2. Not subject to suspicion or accusations of guilt: *The evidence showed that the suspect was in the clear.*

[Middle English *cler*, from Old French, from Latin *cl<sup>3</sup>rus*, clear, bright. See **kel...**<sup>2</sup> below.] --**clear**<sup>a</sup>·**ble** *adj.* --**clear**<sup>er</sup> *n.* --**clear**<sup>ly</sup> *adv.* --**clear**<sup>ness</sup> *n.*

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**mar·gin·al** (mär<sup>j</sup>...-n...l) *adj.* 1. Of, relating to, located at, or constituting a margin, a border, or an edge: *the marginal strip of beach; a marginal issue that had no bearing on the election results.* 2. Being adjacent geographically: *states marginal to Canada.* 3. Written or printed in the margin of a book: *marginal notes.* 4. Barely within a lower standard or limit of quality: *marginal writing ability; eked out a marginal existence.* 5. *Economics.* **a.** Having to do with enterprises that produce goods or are capable of producing goods at a rate that barely covers production costs. **b.** Relating to commodities thus manufactured and sold. 6. *Psychology.* Relating to or located at the fringe of consciousness. --**mar·gin·al** *n.* One that is considered to be at a lower or outer limit, as of social acceptability: *"is fascinated by marginals, by people who live on the edge of society"* (Dan Yakir). --**mar**<sup>gin·al</sup>·**i·ty** (-j...-n<sup>2</sup>l<sup>n</sup>-t<sup>l</sup>) *n.* --**mar**<sup>gin·al</sup>·**ly** *adv.*

Appendix 3: References cited in part B of the Argument

*Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 52 U.S.P.Q.2d 1029 (Fed. Cir.

1999), *cert. denied*, 529 U.S. 1037 (2000); and

*In re Vickers*, 141 F.2d 522, 61 U.S.P.Q. 122 (C.C.P.A. 1944).



461 U.S. at 436.  
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## ORDER

sons stated in the accompany-  
 dum Opinion, it is this 4th day  
 , by the United States District  
 : District of Maryland, OR-

on by Plaintiff O'Well Novelty  
 l. for judgment as a matter of  
 trial, or, to alter or amend the  
 per no. 125) BE, and the same  
 NIED;

on by Defendant Offenbacher,  
 ance of attorneys' fees (paper  
 , and the same hereby IS,  
 n part and DENIED in part;  
 on by Defendant for allowance  
 r no. 124) BE and the same  
 RANTED in part and DE-

t BE, and the same hereby IS,  
 in favor of Defendant and

ed a separate objection (paper  
 fenbacher's proposed "Judgment  
 " (attached to paper no. 123, mo-  
 y's fees). Because the court has  
 n order granting costs and attor-  
 has not specifically required pay-  
 transfer or certified check, the  
 t.

against Plaintiff in the amount of  
 \$115,985.10 for attorneys' fees and costs, in  
 addition to the judgment heretofore entered;

5. Plaintiff's Objection to Defendant's  
 Proposed Judgment Awarding Fees (paper  
 no. 128) BE and the same hereby IS, DE-  
 NIED as MOOT; and,

6. The clerk will mail copies of this Order  
 and the Memorandum Opinion to counsel  
 for the parties and CLOSE this case.

## U.S. Court of Appeals Federal Circuit

Process Control Corp. v. HydReclaim Corp.

Nos. 98-1082, -1277

Decided September 7, 1999

## PATENTS

### 1. Patent construction — Claims — Defin- ing terms (§125.1305)

Term "discharge rate" in claim for meth-  
 od of metering different material ingredients  
 for discharge into material processing ma-  
 chine must be construed as having same  
 meaning in both claim clauses in which it is  
 used, even though claims should be con-  
 strued, if possible, so as to preserve their  
 validity, since claim language at issue is not  
 reasonably susceptible to two different con-  
 structions, since presence of identical lan-  
 guage associated with "discharge rate" in  
 both clauses indicates that both uses refer to  
 rate, in units of weight per units of time, that  
 material is discharged from common hopper  
 to material processing machine, and since  
 this conclusion avoids any lack of antecedent  
 basis problem for occurrence of term in sec-  
 ond clause.

### 2. Patent construction — Claims — In gen- eral (§125.1301)

Rule that patentee can act as his own  
 lexicographer to specifically define terms of  
 claim contrary to their ordinary meaning  
 does not apply if written description does not  
 so clearly define disputed claim term so as to  
 put reasonable competitor, or one reasonably  
 skilled in art, on notice that patentee intend-  
 ed to so redefine that term; if claim term is  
 susceptible to only one reasonable interpreta-  
 tion, and that interpretation results in non-  
 sensical construction of claim as whole, court  
 is not permitted to redraft claim, and instead  
 must hold claim invalid, thus preventing un-  
 due burden on competitors who must deter-

mine scope of invention based on erroneously  
 drafted claim.

### 3. Patentability/Validity — Utility (§115.10)

#### Patentability/Validity — Specification — Enablement (§115.1105)

Claimed invention must be held invalid if  
 impossible limitation, such as nonsensical  
 method of operation, is clearly embodied  
 within claim, since patent claiming inopera-  
 ble subject matter fails to meet utility re-  
 quirement of 35 U.S.C. §101 and enable-  
 ment requirement of Section 112.

### 4. Patentability/Validity — Utility (§115.10)

#### Patentability/Validity — Specification — Enablement (§115.1105)

Claims for method of metering different  
 material ingredients for discharge into mate-  
 rial processing machine are inoperative, and  
 therefore fail to meet utility and enablement  
 requirements of 35 U.S.C. §§101 and 112,  
 since claims, as properly construed, embody  
 inoperative method that violates principle of  
 conservation of mass.

#### Particular patents — Chemical — Gravi- metric blenders

5,148,943, Moller, method and apparatus  
 for metering and blending different material  
 ingredients, judgment that patent is not in-  
 valid reversed; judgment of infringement  
 vacated.

Appeal from the U.S. District Court for  
 the Northern District of Georgia, Camp, J.  
 Action by Process Control Corp. against  
 HydReclaim Corp. for declaratory judgment  
 of patent invalidity and non-infringement.  
 Plaintiff appeals from judgment that patent  
 in suit is not invalid or unenforceable; and  
 that it was willfully infringed, and defendant  
 appeals from district court's refusal to award  
 lost profits damages and enhanced damages,  
 and from exclusion of its damages experts at  
 trial. Reversed in part and vacated in part.

Todd Deveau, Harold L. Marquis and Ryan  
 A. Schneider, of Deveau, Colton & Mar-  
 quis, Atlanta, Ga., for plaintiff-appellant.

Bradley A. Slutsky, Joseph R. Bankoff and  
 Christian S. Genetski, of King & Spald-  
 ing, Atlanta, for defendant-cross  
 appellant.



Before Bryson, circuit judge, Friedman, senior circuit judge, and Gajarsa, circuit judge.

Gajarsa, J.

Process Control Corporation ("Process Control") appeals the decision of the United States District Court for the Northern District of Georgia, Docket No. 93-CV-2795, wherein the district court sustained the validity and enforceability of U.S. Patent No. 5,148,943 owned by HydReclaim Corporation ("HydReclaim"), and found that Process Control had willfully infringed certain claims of that patent. Because the district court erred in its construction of the claims at issue and because the claims as written and correctly construed are invalid, we reverse the district court's determination that the patent is valid and vacate its finding of infringement.

#### BACKGROUND

HydReclaim is the owner of U.S. Patent No. 5,148,943 ("the '943 patent") directed to continuous gravimetric blenders used in the plastics industry. These blenders mix multiple solid ingredients in appropriate proportions based on weight and feed the mixture to a weighed common hopper. The resulting mixture is then discharged from the weighed common hopper to a processing machine, *i.e.*, an extruder, that heats and combines the blended ingredients into a desired final product.

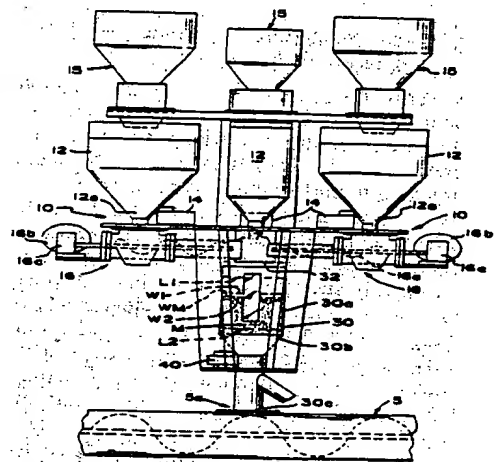
Prior to the invention described in the '943 patent, the discharge rate of continuous gravimetric blenders was controlled by using level sensing devices that measured and maintained constant the volume of blended material in the common hopper. Because the densities of the materials to be blended varied, such prior art devices encountered various drawbacks. These drawbacks included poor control over the accuracy of the recipe provided by the blender to the extruder and poor control over the discharge rate of the blended materials from the common hopper to the extruder because of the inability to determine the weight of the blended material leaving the common hopper. These drawbacks resulted in a final extruded product of inconsistent quality.

The invention described in the '943 patent solved these problems by measuring the weight, rather than the volume, of the material in the common hopper and maintaining that weight in the common hopper at a constant value. A device measures the rate at

which the individual ingredient materials are discharged into the common hopper, and another device measures the change in weight of the common hopper over time. Using these two variables and the basic principle of mass balancing, the rate of the processing machine is determined, *i.e.*, the rate at which material is processed by the extruder is learned. By matching that learned gravimetric speed of the extruder to the gravimetric speed of the blender, a constant weight of blended material in the common hopper is maintained.

In particular, as shown in Figure 2 of the '943 patent reproduced below, the ingredients are discharged from individual ingredient hoppers 12 and directed to a blending chamber 32, after which the blended ingredients are directed to a common hopper 30 equipped with a weighing device 40. '943 Patent, col. 5, ll. 26-32.

FIG - 2

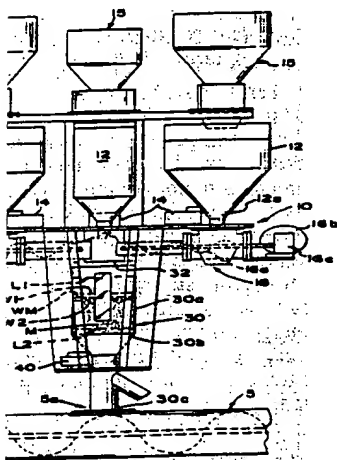


A master computer control unit (not shown) is coupled to individual metering devices 10 associated with the individual ingredient hoppers. The metering devices control the material discharge rate of each individual ingredient to maintain a preset ratio of the ingredients. *Id.* at col. 3, ll. 51-58. The master computer control unit is also coupled to the weighing device 40 associated with the common hopper for determining a discharge rate of the blended ingredients from the common hopper to the processing machine 5 based on the weight loss of the common hopper over time. *Id.* at col. 3, ll. 35-39. The master computer control unit thus determines the material processing rate of the processing machine, *i.e.*, the extruder, based on the sum of the material discharge feed

individual ingredient materials are to the common hopper, and the device measures the change in the common hopper over time. By matching the rate of the processing rate of the extruder to the feed of the blender, a constant blended material in the common hopper is maintained.

As shown in Figure 2 of the reproduced below, the ingredients are directed to a blending device after which the blended ingredients are directed to a common hopper 30 which has a weighing device 40. '943 patent, ll. 26-32.

FIG - 2



computer control unit (not shown) with the individual ingredient metering devices control the discharge rate of each individual metering device to maintain a preset ratio of the ingredients. *Id.* at col. 3, ll. 51-58. The master control unit is also coupled to the weighing device 40 associated with the common hopper for determining a discharge rate of the blended ingredients from the common hopper to the processing machine 50. *Id.* at col. 3, ll. 35-39. The computer control unit thus determines the material processing rate of the processing machine, i.e., the extruder, based on the material discharge rate

of the individual ingredients to the common hopper plus or minus the discharge rate of the blended ingredients from the common hopper to the processing machine. *Id.* at col. 3, ll. 45-51. In other words, a constant weight of ingredients in the common hopper is maintained by matching the material processing rate of the processing machine (what comes out of the common hopper) to the sum of the individual ingredient discharge rates (what goes into the common hopper), by using information about the change in weight of the common hopper over time.

Process Control is a competitor of HydReclaim in the material blending business. Process Control uses three methods that are alleged by HydReclaim to infringe the '943 patent. Method One, performed by Process Control's BG blender, operates identically to HydReclaim's 470 blender, which embodies the invention disclosed in the '943 patent. Method Two operates to control the weight in the common hopper by using a high and a low control point, the weight oscillating between the control points. Method Three operates to control the weight in the common hopper by using a set point controlled by a second variable, i.e., total blender rate. Method Three is based on a proportional integral derivative (PID) control system.

HydReclaim sued Process Control in Michigan in December 1992 for infringement of the '943 patent, but the action was dismissed for lack of jurisdiction. During subsequent settlement negotiations, Process Control filed the present declaratory judgment action in December 1993 in Georgia, asserting, *inter alia*, invalidity, unenforceability, and noninfringement of the '943 patent. During a bench trial, the district court construed the claims as urged by HydReclaim, sustained the validity of the '943 patent, found that Process Control had willfully infringed claims 1, 3-7, 11, and 13-14 of the '943 patent, found that the '943 patent was enforceable, and awarded HydReclaim a 15% reasonable royalty and its attorneys' fees and costs.

Process Control appeals, challenging the district court's claim construction, the finding of willful infringement, the determination of nonobviousness, the finding of enforceability, and the award of a 15% reasonable royalty. HydReclaim cross-appeals the refusal to award lost profits and to enhance the damages and the district court's exclusion of its damages experts at trial. As will be evident from the discussion below, we need reach only the issue of claim construction.

## DISCUSSION

### I. CLAIM CONSTRUCTION

#### A.

Claim construction is a matter of law, see *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71, 34 USPQ2d 1321, 1322 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996), that we review *de novo*, see *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1451, 46 USPQ2d 1169, 1171 (Fed. Cir. 1998) (en banc).

#### B.

Claims 1-6 of the '943 patent are directed to a method of metering different material ingredients for discharge to a material processing machine, and claims 7-14 are directed to an apparatus for carrying out that method. Claims 1-7, 11, and 13-14 are at issue in this appeal, of which claims 1, 4, 7, and 14 are independent.

The district court determined that all of the claims at issue contained the limitation of determining the material processing rate by adding (1) the sum of the material discharge rates of the individual material ingredients to a common hopper, and (2) the discharge rate of the blended materials from the common hopper to the processing machine. See Order of September 30, 1997, ¶ 5. We agree with that analysis, and therefore our discussion of the limitations at issue in the context of claim 1 applies to all of the claims at issue on appeal.

Claim 1 provides:

1. A method of metering different material ingredients for discharge to a material processing machine, comprising:

[a] delivering to a common hopper a plurality of individual material ingredients at controllable individual material discharge rates;

[b] discharging material from said common hopper to said processing machine at a discharge rate;

[c] determining loss of weight of material in said hopper due to discharge of material therefrom;

[d] determining the material processing rate of the processing machine from the sum of the material discharge rates of the ingredients to the common hopper and the discharge rate of the material from the common hopper to the processing machine, and

[e] controlling the material discharge rates of the ingredients to the common hopper in response to said determined material processing rate as needed to maintain a preset recipe of said blended ingredients at said determined material processing rate.

(emphasis and paragraphing added).

Before the district court, the parties disputed whether "discharge rate" emphasized above in clauses [b] and [d] should be given the same meaning throughout the claim, as urged by Process Control, or whether the second emphasized occurrence means "change in weight of the common hopper," as urged by HydReclaim. Based on the written description, the district court construed the claim in accordance with HydReclaim's assertion, namely that the occurrence of "discharge rate" in clause [d] means "change in weight of the common hopper." See Order of September 30, 1997, ¶¶ 32-33. The district court determined that the patentee had specifically defined the second occurrence of "discharge rate" in his written description to mean "change in weight," relying on the following passages from the written description for its claim construction:

A master computer control unit is coupled to the weighing device of the common hopper for determining a discharge rate of the ingredients from the common hopper to the processing machine based on the *weight loss of the common hopper over time*. '943 Patent, col. 3, ll. 35-39 (emphasis added).

A weighing device 40, such as a precision, offset, cantilever load cell, is operably connected to and solely supports the common hopper 30 at the discharge end 30a. The weighing device 40 detects the *change in weight* of the blend M therein during the admission and discharge of material to and from the common hopper 30. '943 Patent, col. 5, ll. 44-50 (emphasis added).

A master digital computer control unit 50 (FIG. 4) is coupled via interface 50a (e.g., RS485 serial network interfaces) to the weighing device 40 of the common hopper 30 for receiving *weight loss signals* therefrom (analog to digital converted signals) *over time* and determining a blend discharge rate from the common hopper 30 to the extrusion machine 5. '943 Patent, col. 5, ll. 50-57 (emphasis added).

The master computer control unit 50 continually determines minute differential *weight changes* in the common hopper 30 and calculates the precise differences in the sum of the material discharge rates of the metering units 10 and the extrusion

rate. '943 Patent, col. 7, ll. 46-50 (emphasis added).

The district court concluded that "[i]f 'discharge rate' is construed as Process Control asserts [*i.e.*, the same as the first occurrence of discharge rate], this specification would be nonsensical." Order of September 30, 1997, ¶ 33.

### C.

On appeal, Process Control challenges the district court's claim construction on various theories. First, as in the district court, Process Control asserts that "discharge rate" in clauses [b] and [d] should be given the same meaning throughout the claim, particularly as both occurrences include the language "from said [or the] common hopper to said [or the] processing machine." This construction, notes Process Control, obviates the lack of antecedent basis for the second occurrence of "discharge rate" in clause [d] and a concomitant finding of invalidity under 35 U.S.C. § 112, ¶ 2 which necessarily results from the district court's claim construction.

Second, Process Control argues that "discharge rate" is defined in the claims themselves to mean "discharging [blended] material *from* said common hopper *to* said processing machine at a discharge rate." '943 Patent, claim 1, clause [b] (emphasis added). The references in the written description relied upon by the district court to redefine "discharge rate" to mean "change in weight" do not clearly redefine that term and, in any event, would redefine the term contrary to the explicit definition of that term in the claim itself.

Third, Process Control notes that claims 7-14 include the limitation of a "second weighing means . . . for detecting a change in weight of the ingredients" in the common hopper. According to Process Control, this demonstrates that the subsequent reference to "discharge rate" in clause [d] could not mean "change in weight" as determined by the district court, as use of different terms in a single claim indicates that those terms are not synonymous.

In response, HydReclaim defends the district court's claim construction, urging that the claims are to be construed in a way which will preserve their validity and secure the patentee his actual invention. This can only be done, asserts HydReclaim, by construing the claims in light of the written description, in "the natural manner in which they make sense." Process Control's asserted claim construction, as its own witnesses admitted, would require "determining something from some entity which includes what you are

3 Patent, col. 7, ll. 46-50 (emphasis):  
 The court concluded that "[i]f 'discharge rate' is construed as Process Control's, the same as the first occurrence [change rate], this specification would be unclear." Order of September 30,

### C.

al, Process Control challenges the district court's claim construction on various grounds. First, as in the district court, Process Control asserts that "discharge rate" in clause [b] and [d] should be given the same meaning throughout the claim, particularly the occurrences include the language "for the common hopper to said processing machine." This construction, Process Control, obviates the lack of an antecedent basis for the second occurrence of "discharge rate" in clause [d] and a confounding of invalidity under 35 U.S.C. § 112, ¶ 2 which necessarily results from the district court's claim construction. Process Control argues that "discharge rate" is defined in the claims themselves as "discharging [blended] material from the common hopper to said processing machine at a discharge rate." In claim 1, clause [b] (emphasis added), the references in the written description relied upon by the district court to support its "discharge rate" to mean "change in weight" do not clearly redefine that term. By event, would redefine the term without the explicit definition of that claim itself.

Process Control notes that claims 1 and 2 recite the limitation of a "second change rate . . . for detecting a change in the ingredients" in the common hopper. According to Process Control, this limitation states that the subsequent reference to "discharge rate" in clause [d] could not mean "change in weight" as determined by the district court, as use of different terms in the claim indicates that those terms are ambiguous.

In response, HydReclaim defends the district court's claim construction, urging that the claim should be construed in a way which preserves their validity and secures the claim to the actual invention. This can only be done, HydReclaim argues, by construing the claim in light of the written description, in the manner in which they make Process Control's asserted claim construction as its own witnesses admitted, and by determining something from the claim which includes what you are

trying to measure," a construction that clearly does not make sense. HydReclaim also refutes Process Control's antecedent basis argument by asserting that "a discharge rate" in clause [b] is different from "the discharge rate" in clause [d], the former being an undetermined flow rate at that stage of the algorithm, the latter being an actually calculated flow rate based on loss of weight of material in the common hopper over time.

### D.

We agree with Process Control, although the parties present us with competing canons of claim construction with which to interpret the claims at issue on appeal. It is true, as HydReclaim urges, that we should attempt to construe the claims to preserve their validity, see *Smith v. Snow*, 294 U.S. 1, 14 [24 USPQ2d 1418, 1424 (Fed. Cir. 1998)], the quoted portions from the written description above do not so clearly redefine "the discharge rate" in clause [d] so as to put a reasonable competitor or one reasonably skilled in the art on notice that the patentee intended to so redefine that claim term. See *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 951 n.15; 28 USPQ2d 1936, 1939 n.15 (Fed. Cir. 1993) (reasoning that the reasonable competitor standard is analytically equivalent to the reasonably skilled in the art standard). More importantly, we do not permit courts to redraft claims. See *Quantum Corp. v. Rodime, Plc*, 65 F.3d 1577, 1584, 36 USPQ2d 1162, 1168 (Fed. Cir. 1995) ("Although we construe claims, if possible, so as to sustain their validity, . . . it is well settled that no matter how great the temptations of fairness or policy making, courts do not redraft claims."); *Becton Dickinson & Co. v. C.R. Bard Inc.*, 922 F.2d 792, 799 n.6, 17 USPQ2d 1097, 1102 n.6 (Fed. Cir. 1990) ("Nothing in any precedent permits judicial redrafting of claims. At most there are admonitions to construe words in claims narrowly, if possible, so as to sustain their validity."). Where, as here, the claim is susceptible to only one reasonable construction, the canons of claim construction cited by HydReclaim are inapposite, and we must construe the claims based on the patentee's version of the claim as he himself drafted it. See *Hoganas*, 9 F.3d at 951, 28 USPQ2d at 1939. ("It would not be appropriate for us now to interpret the claim differently just to cure a drafting error . . . That would unduly interfere with the function of claims in putting competitors on notice of the scope of the claimed invention.")

[1] However, contrary to HydReclaim's assertions, this is not a case where the claim language is reasonably susceptible to two constructions. Rather, the claim as written by the patentee is susceptible to only one meaning. It is clear from the language of the claim itself that the term "a discharge rate" in clause [b] is referring to the same rate as the term "the discharge rate" in clause [d]. This conclusion necessarily results from the identical language associated with the term "discharge rate" in both clauses [b] and [d], namely "from the common hopper to the material processing machine." The presence of that identical language clearly indicates that "a discharge rate" in clause [b] is the same as "the discharge rate" in clause [d], both referring to the rate (in units of weight per unit of time) that material is discharged from the common hopper to the material processing machine. In addition, that conclusion avoids any lack of antecedent basis problem for the occurrence of "the discharge rate" in clause [d].

It should be noted that the lack of antecedent basis problem would not be present in those claims specifically reciting "change in weight"

[2] The district court's attempt to use the written description to circumvent the plain language of the claim and the clear definition of the disputed claim language found therein was inappropriate. While we have held many times that a patentee can act as his own lexicographer to specifically define terms of a claim contrary to their ordinary meaning, see, e.g., *Digital Biometrics v. Identix, Inc.*, 149 F.3d 1335, 1344, 47 USPQ2d 1418, 1424 (Fed. Cir. 1998), the quoted portions from the written description above do not so clearly redefine "the discharge rate" in clause [d] so as to put a reasonable competitor or one reasonably skilled in the art on notice that the patentee intended to so redefine that claim term. See *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 951 n.15; 28 USPQ2d 1936, 1939 n.15 (Fed. Cir. 1993) (reasoning that the reasonable competitor standard is analytically equivalent to the reasonably skilled in the art standard). More importantly, we do not permit courts to redraft claims. See *Quantum Corp. v. Rodime, Plc*, 65 F.3d 1577, 1584, 36 USPQ2d 1162, 1168 (Fed. Cir. 1995) ("Although we construe claims, if possible, so as to sustain their validity, . . . it is well settled that no matter how great the temptations of fairness or policy making, courts do not redraft claims."); *Becton Dickinson & Co. v. C.R. Bard Inc.*, 922 F.2d 792, 799 n.6, 17 USPQ2d 1097, 1102 n.6 (Fed. Cir. 1990) ("Nothing in any precedent permits judicial redrafting of claims. At most there are admonitions to construe words in claims narrowly, if possible, so as to sustain their validity."). Where, as here, the claim is susceptible to only one reasonable construction, the canons of claim construction cited by HydReclaim are inapposite, and we must construe the claims based on the patentee's version of the claim as he himself drafted it. See *Hoganas*, 9 F.3d at 951, 28 USPQ2d at 1939. ("It would not be appropriate for us now to interpret the claim differently just to cure a drafting error . . . That would unduly interfere with the function of claims in putting competitors on notice of the scope of the claimed invention.")

### E.

Our conclusion that the occurrences of "discharge rate" in clauses [b] and [d] of

(i.e., claims 7-14). Nevertheless, those claims would suffer from the infirmity of using two different phrases, "change in weight" and "discharge rate," to mean the same thing in the same claim if we were to adopt HydReclaim's and the district court's claim construction.



claim 1 are to be interpreted as referring to the same rate has the following implication for clause [d]. It cannot be disputed that the "material processing rate of the processing machine" is identical to the "discharge rate of the material from the common hopper to the processing machine." The material processing rate of the extruder (the processing machine) is dictated by the rate of the material fed to it, i.e., the discharge rate of the material from the common hopper. As a result of our claim construction, clause [d] does not make "sense" as HydReclaim itself realizes and concedes. What HydReclaim fails to realize is that such a nonsensical result does not require the court to redraft the claims of the '943 patent. Rather, where as here, claims are susceptible to only one reasonable interpretation and that interpretation results in a nonsensical construction of the claim as a whole, the claim must be invalidated, thus preventing unduly burdening competitors who must determine the scope of the claimed invention based on an erroneously drafted claim.

## II. INVALIDITY

### A.

The question that remains is under what theory are the claims of the '943 patent invalid. The district court addressed invalidity of the '943 patent under numerous theories: (1) as vague and indefinite under 35 U.S.C. § 112, ¶ 1, see Order of September 30, 1997, ¶¶ 53-57; (2) as on-sale under 35 U.S.C. § 102(b), see *id.* ¶¶ 58-69; (3) as publicly known under 35 U.S.C. § 102(a), see *id.* ¶¶ 70-76; (4) as improperly derived under 35 U.S.C. § 102(f), see *id.* ¶¶ 77-84; (5) as previously invented under 35 U.S.C. § 102(g), see *id.* ¶¶ 85-96; and (6) as obvious under 35 U.S.C. § 103, see *id.* ¶¶ 97-108. The district court held the '943 patent valid in the face of all of these challenges. Process Control only appealed to us the district court's conclusion of nonobviousness.

Nevertheless, Process Control asserts on appeal, in the context of claim construction, that the district court erred in its claim construction because the use of two different definitions for the identical term "discharge rate" creates ambiguity and results in lack of antecedent basis for the second occurrence. For its part, HydReclaim concedes that the claim "makes no sense" if we are to adopt the construction that Process Control urges, which we indeed have done as described above. Process Control responds that this construction presents a question of enable-

ment rather than claim construction. Thus, although the parties discussed whether the properly construed claim "makes no sense" primarily in the context of indefiniteness and claim construction, we consider their arguments in the district court and in their briefs to us regarding the claims "mak[ing] no sense" as preserving and raising the issues of utility (and operability) under 35 U.S.C. § 101 and enablement under 35 U.S.C. § 112, ¶ 1 on appeal.

### B.

[3] Lack of enablement and absence of utility are closely related grounds of unpatentability. See *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956, 220 USPQ 592, 596 (Fed. Cir. 1983). The enablement requirement of 35 U.S.C. § 112, ¶ 1 requires that the specification adequately discloses to one skilled in the relevant art how to make, or in the case of a process, how to carry out, the claimed invention without undue experimentation.<sup>2</sup> See *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997). The utility requirement of 35 U.S.C. § 101 mandates that any patentable invention be useful and, accordingly, the subject matter of the claim must be operable. See *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571, 24 USPQ2d 1401, 1412 (Fed. Cir. 1992). If a patent claim fails to meet the utility requirement because it is not useful or

<sup>2</sup>The district court determined that the claims of the '943 patent were not vague or indefinite under 35 U.S.C. § 112. See Order of September 30, 1997, ¶¶ 53-57. We note, however, that definiteness and enablement are analytically distinct requirements, even though both concepts are contained in 35 U.S.C. § 112. The definiteness requirement of 35 U.S.C. § 112, ¶ 2 is a legal requirement, based on the court's role as construer of patent claims, that is reviewed *de novo*. See, e.g., *Personalized Media Communications v. Int'l Trade Comm'n*, 161 F.3d 696, 705, 48 USPQ2d 1880, 1888 (Fed. Cir. 1998). Definiteness requires the language of the claim to set forth clearly the domain over which the applicant seeks exclusive rights. See 35 U.S.C. § 112, ¶ 2 ("[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention"). The test for whether a claim meets the definiteness requirement is "whether one skilled in the art would understand the bounds of the claim when read in light of the specification." *Personalized Media*, 161 F.3d at 705, 48 USPQ2d at 1888. However, the problem in the present case is not the clarity of the claim language preventing one skilled in the art from determining the scope of the claim.

er than claim construction. Thus, the parties discussed whether the construed claim "makes no sense" in the context of indefiniteness and construction, we consider their arguments in the district court and in their briefs regarding the claims "mak[ing] no sense" and raising the issues of operability) under 35 U.S.C. § 112, (b) (2). The claim is invalid under 35 U.S.C. § 112, (b) (2).

# B.

of enablement and absence of closely related grounds of unpatentability. See *Raytheon Co. v. Roper*, 724 F.2d 951, 956, 220 USPQ 592, 596 (Fed. Cir. 1983). The enablement requirement of 35 U.S.C. § 112, (b) (1) requires disclosure adequately discloses to one of ordinary skill in the art how to make, use, and practice the invention without undue experimentation. See *Genentech, Inc. v. Novo*, 14 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997). The requirement of 35 U.S.C. § 101, that an invention be useful, is a separate matter of the patentability of an invention. See *Brooktree Corp. v. Micro Devices, Inc.*, 977 F.2d 1401, 1412 (Fed. Cir. 1992). If a patent claim fails to meet the requirement because it is not useful or

the district court determined that the '943 patent were not vague or indefinite under 35 U.S.C. § 112. See Order of Dec. 10, 1997, ¶¶ 53-57. We note, however, that definiteness and enablement are analytically distinct requirements, even though both concepts are defined in 35 U.S.C. § 112. The definiteness requirement of 35 U.S.C. § 112, (b) (2) is a legal conclusion, based on the court's role as an appellate court, that is reviewed *de novo*. See *Personalized Media Communications v. Comm'n*, 161 F.3d 696, 705, 48 USPQ2d 1880, 1888 (Fed. Cir. 1998). Definiteness is the language of the claim to set the domain over which the applicant asserts its rights. See 35 U.S.C. § 112, (b) (2). The definiteness requirement shall conclude with one or more particularly pointing out and distinguishing the subject matter which the applicant claims as "his invention". The test for definiteness is whether one skilled in the art would be able to determine the bounds of the claim when read in light of the specification. *Personalized Media*, 48 USPQ2d at 1888. However, in the present case is not the clarity of the language preventing one skilled in the art from determining the scope of the claim.

operative, then it also fails to meet the how-to-use aspect of the enablement requirement. In *Raytheon*, we held certain process claims invalid, stating

[b]ecause it is for the invention as claimed that enablement must clearly exist, and because the impossible cannot be enabled, a claim containing a limitation impossible to meet may be held invalid under § 112. Moreover, when a claim requires a means for accomplishing an unattainable result, the claimed invention must be considered inoperative as claimed and the claim must be held invalid under either § 101 or § 112 of 35 U.S.C.

724 F.2d at 956, 220 USPQ at 596. As the passage illustrates, when an impossible limitation, such as a nonsensical method of operation, is clearly embodied within the claim, the claimed invention must be held invalid. While an otherwise valid patent covering a meritorious invention should not be struck down simply because of the patentee's misconceptions about scientific principles concerning the invention, see *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1570, 219 USPQ 1137, 1140 (Fed. Cir. 1983), when "the claimed subject matter is inoperative, the patent may indeed be invalid for failure to meet the utility requirement of § 101 and the enablement requirement of § 112," *Brooktree Corp.*, 977 F.2d at 1571, 24 USPQ2d at 1412 (citing *Raytheon Co.*, 724 F.2d at 956, 220 USPQ at 596).

# C.

Utility is a factual issue, which we review for clear error. See, e.g., *In Re Cortright*, 165 F.3d 1353, 1356, 49 USPQ2d 1464, 1465 (Fed. Cir. 1999). Whether a disclosure is enabling under 35 U.S.C. § 112, (b) (1) is a legal conclusion, based upon underlying factual inquiries, and subject to *de novo* review. See, e.g., *Bruning v. Hirose*, 161 F.3d 681, 686, 48 USPQ2d 1934, 1938 (Fed. Cir. 1998).

[4] In the present case, it is undisputed by both HydReclaim and Process Control that a consistent definition of "discharge rate" in clauses [b] and [d] of claim 1 leads to a nonsensical conclusion: Due to the principle of conservation of mass, the material processing rate of the processing machine must necessarily be equal to the discharge rate of the material from the common hopper to the processing machine in a steady-state process. Consequently, clause [d] of claim 1, which reads:

[d] determining the material processing rate of the processing machine from the sum of the material discharge rates of the

ingredients to the common hopper and the discharge rate of the material from the common hopper to the processing machine embodies an inoperable method that violates the principle of conservation of mass. In other words, clause [d] requires determining a quantity from the sum of that exact same quantity and something else, or symbolically,  $A = A + B$ , which is impossible, where, as here, B is not equal to zero. Accordingly, we hold that the correctly construed claims are invalid because they are inoperative, and thus the claims fail to comply with the utility and enablement requirements of 35 U.S.C. §§ 101 and 112, (b) (1), respectively.

# CONCLUSION

Given our conclusion that the claims of the '943 patent are invalid, we vacate the district court's finding of infringement. The issues of willful infringement, damages, nonobviousness, enforceability, and exclusion of witnesses therefore need not be addressed.

# COSTS

Each party will bear its own costs.

# REVERSED-IN-PART and VACATED-IN-PART

# U.S. Court of Appeals Seventh Circuit

Syndicate Sales Inc. v. Hampshire Paper Corp.

No. 98-4217

Decided September 13, 1999

# TRADEMARKS AND UNFAIR TRADE PRACTICES

1. Types of marks — Trade dress as mark — Labeling and appearance of goods (§327.0704)

Infringement; conflicts between marks — Likelihood of confusion — Particular marks — Confusion not likely (§335.0304.05)

Trade dress of defendant's baskets used for floral arrangements at funerals is not likely to cause confusion as to source, even though it is similar to trade dress of plaintiff's baskets, since wholesalers would not be confused, since most retailers order such

request for reconsideration of the board's decision, pointing out among other things that the "Endotherm" reference was improperly cited and relied on, since its publication date, November 1933, is subsequent to the filing date of appellant's parent application. July 27, 1936. On September 10, 1942 the board dismissed appellant's request for reconsideration for the reason that it had not had an opportunity to consider it until after appellant had filed his notice of appeal to this court on September 4, 1942. The board held that it had lost jurisdiction because of that appeal, citing *In re Allen, Jr.*, 28 C.C.P.A. (Patents) 792, 115 F.2d 936, 47 USPQ 471.

Appellant in his reasons of appeal did not specifically allege error against the reliance by the board on the "Endotherm" reference because of its late date, and for this reason that reference must be considered here for what it is worth. *In re Davis et al.*, 29 C.C.P.A. (Patents) 723, 123 F.2d 651, 51 USPQ 458.

Appellant was not required to file his notice of appeal as early as September 4, 1942 in view of the amendment to rule 149 which took effect on September 1, 1941, published at 6 F. R. 3923 and 529 O.G. 509, which provides that "if a petition for rehearing or reconsideration is filed within 20 calendar days after said decision, the notice of appeal may be given and the reasons of appeal filed within 15 calendar days after action on the petition."

Appellant concedes that it is old as shown in the prior art of record to utilize high-frequency energy for diathermy treatment. We are unable to see, however, that any of the prior art provides for a method of treatment whereby the fields in which the subject to be treated is placed are resonant within a closed chamber at a frequency characteristic of the chamber. None of the references disclosed an apparatus providing for a closed or substantially closed resonant chamber.

The only reference in the cited art showing an enclosure which may surround a patient is the Esau patent. There the subject is placed within a circular metal screen which may be of homogeneous metal or a plurality of parallel wires, open at the top. The screening is not connected with the electrical circuit and the patient is treated by means of plates situated opposite each other covering the portion of the body to be treated. It is stated in the patent that instead of the electric alternating field just described the magnetic alternating field can be used. That

magnetic alternating field, however, comprises the surrounding of the part to be treated with a coil not touching the part or the coil being in proximity to such part. It is obvious that such fields as have been described can be used simultaneously or separately. It is also stated in the patent that the reason for enclosing the body subjected to the short wave field with a metal screening is to avoid the loss of energy caused by sparking phenomenon at the electrodes, causing temperature increases in persons stationed near the patient of as much as 1° in an hour as the result of the displacement currents caused by the sparks. Therefore it is clear that the enclosure disclosed by the Esau patent is for a shield only and is intended to divert radiation so that it flows out of the ends of the wires of the shield, and likewise protect those who might be near the patient. The device of the Esau patent in our opinion does not anticipate the device defined by the claims, for the reason that instead of implying resonance in the shield the latter is not even part of the circuit. It appears to us that appellant's entire invention hinges on the maintenance of resonance within a chamber at its natural frequency characteristic, and we find nothing in the references which would make it obvious to one skilled in the art to construct the apparatus or use the method of appellant.

For the reasons heretofore stated the decision of the Board of Appeals is reversed.

31 C.C.P.A. (Patents) 985

Court of Customs and Patent Appeals

In re VICKERS AND HERMAN

Appl. No. 4836 Decided Mar. 6, 1944

## PATENTS

1. Claims—Broad or narrow—In general

Patentability—Anticipation—In general

Pleading and practice in Patent Office

Assuming that Office can reject broad claim merely because it covers one or more inoperative species, Court of Customs and Patent Appeals deems it proper

alternating field, however, come surrounding of the part to be with a coil not touching the part coil being in proximity to such is obvious that such fields as have scribed can be used simultaneously. It is also stated in that the reason for enclosing subjected to the short wave field metal screening is to avoid the energy caused by sparking phenomenon at the electrodes, causing temperature increases in persons standing near the patient of as much as 1 hour as the result of the distant currents caused by the sparks. It is clear that the enclosure by the Esau patent is for a shield and is intended to divert so that it flows out of the ends of the shield, and likewise those who might be near the

The device of the Esau patent opinion does not anticipate the defined by the claims, for the that instead of implying resonance the shield the latter is not part of the circuit. It appears to appellant's entire invention on the maintenance of resonance a chamber at its natural frequency characteristic, and we find nothing references which would make us to one skilled in the art to the apparatus or use the of appellant.

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A. (Patents) 985

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to say that Board has repeatedly held that burden is on examiner to show that claim covers inoperative species, and not on applicant to show that it does not.

## 2. Specification—Sufficiency of disclosure —In general

In mechanical cases, broad claims may be supported by single form of apparatus disclosed in application; applicant need not disclose each specific embodiment of invention covered by claims.

### Particular patents—Pumping Apparatus

Vickers and Herman, Oil Well Pumping Apparatus, claims 4, 12, 20, 21, and 37 of application allowed.

### Appeal from Board of Appeals of the Patent Office.

Application for patent of Harry F. Vickers and Kenneth R. Herman, Serial No. 281926. From decision rejecting claims 4, 12, 20, 21, and 37, applicants appeal. Reversed.

BARNES, KISSELLE, LAUGHLIN & RAISCH (JOHN M. KISSELLE and ROBERT A. CHOATE of counsel), all of Detroit, Mich., for appellants.

W. W. COCHRAN (R. F. WHITEHEAD of counsel) for the Commissioner of Patents.

HATFIELD, Judge.

This is an appeal from the decision of the Board of Appeals of the United States Patent Office affirming the decision of the Primary Examiner rejecting claims 4, 12, 20, 21, and 37 in appellant's application for a patent for an alleged invention relating to new and useful improvements in oil well pumping apparatus.

Seventeen claims were allowed by the Primary Examiner.

Claim 4 is illustrative of the appealed claims. It reads:

4. In combination, a cylinder for containing an operating liquid, a reciprocal member in said cylinder, means acting on said member for resisting the entrance of liquid to said cylinder, a motor cylinder, a reciprocal member in said motor cylinder adapted to be operably connected to the sucker rod of a pump in a well, a pressure forming means, a pilot operated shiftable means adapted to control the direction of liquid under pressure through said pressure forming means and to and from said cylinders, a supply of operating liquid, unidirectional valve means connecting said supply

with the inlet of said pressure forming means, valve means responsive to movement of one of said reciprocal members for directing pressure to said pilot operated means to shift the same, and additional valve means responsive to abnormal movement of one of said reciprocal members resulting in closure of the outlet port of one of said cylinders adapted to delay the shifting of said pilot operated means, and thereby cause a replenishing of liquid from said supply to said system during said delay.

The claims were rejected by the tribunals of the Patent Office on the ground that they are broader than appellants' invention. They were not rejected on prior art.

There being no prior art involved, it is unnecessary that a detailed explanation of appellants' apparatus be here set forth. However, the Primary Examiner described appellants' apparatus quite fully in his statement to the Board of Appeals.

Appellants' apparatus includes a so-called "well operating or work cylinder" and piston, an accumulator cylinder and piston, and a pump which forces liquid from one cylinder to the other under control of a directional valve. The apparatus also includes two pilot valves. One, controlled by the accumulator piston, causes normal reversal shifting of the directional valve, and the other, by abnormal movement of the work cylinder piston which closes a port in the lower part of the work cylinder, delays normal reversal for replenishment purposes. (Replenishment is required because of leakage in the system.) Thus it will be seen that appellants' apparatus is an automatic system for reversal of a closed system and replenishment of liquid in the system.

It will be observed from what has been said that in appellants' apparatus one of the pilot valves is caused to operate by the accumulator piston, and the other by the work cylinder piston. The accumulator piston and the work cylinder piston move substantially in unison. Accordingly, the idea of actuating the valves in accordance with piston movement is obviously a unitary conception, and the operation of the system would be the same regardless of whether the accumulator piston or the work cylinder piston operates one or the other of those valves, provided the valves are operated for the purposes hereinbefore set forth.

In the apparatus defined by the appealed claims, the pilot valves may be



operated by the two pistons, as hereinbefore described, or they may be operated by a single piston.

The language of claim 4 which calls broadly for the operation of the valves either by a single piston or by two pistons is as follows:

valve means responsive to movement of *one* of said reciprocal members for directing pressure to said pilot operated means to shift the same, and additional valve means responsive to abnormal movement of *one* of said reciprocal members resulting in closure of the outlet port of *one* of said cylinders adapted to delay the shifting of said pilot operated means, and thereby cause a replenishing of liquid from said supply to said system during said delay. (Italics not quoted.)

In his statement to the Board of Appeals, the Primary Examiner said that, although the appealed claims read on appellants' disclosure, they were "incomplete" in that they omitted "a limitation without which" they were "broader than the disclosed invention," that is to say, they were sufficiently broad to call for the operation of the valves by a single piston. The examiner stated, however, that he would allow claims which defined the arrangement of the apparatus wherein "one piston by its movement controls the application of pilot pressure, while the other piston by its movement closes the inlet port of its cylinder to delay reversal." We quote from the examiner's statement as follows:

The claims on appeal, however, are even broader \* \* \* in that they merely state that *one* piston controls pilot pressure, and *one* piston delays reversal by causing closure of the outlet port of *one* cylinder. This language is broad enough to cover a construction wherein a single piston controls the pilot pressure and its own or the other cylinder's inlet port to also delay reversal. Whether it is possible to construct such a structure wherein a single piston performs all these functions, the Examiner cannot say. For present purposes, it seems sufficient to state that it is not immediately clear how it can be done, and applicants have not shown how to do it. Under such circumstances, it is believed proper to require applicants to reasonably restrict their claims to cover their own structure and obvious modifications thereof, while still leaving the field of improvement open to him who subsequently teaches the public how all the functions are to be performed by

the motion of only one of the two moving pistons.

Applicants have argued that it is possible that all reversing and delay functions could be performed by motion of one piston, and that to require them to limit the claims to recite that the control is under the motion of both pistons, would unduly limit their protection.

The answer to this is that if such a structure is possible, and is part of the invention disclosed in this case, applicants should have described it, if they desired to claim it. Having failed to describe it, and it is not being apparent how it can be brought about, it must be held to be outside the scope of the invention described herein, and applicants are not entitled to protection on it. (Italics quoted.)

In its decision affirming the decision of the Primary Examiner, the Board of Appeals called attention to the language in the body of claim 4, hereinbefore specifically referred to, and stated that the wording of the claim was confusing when read on the drawings in appellants' application; that appellants have not shown a construction, either in their drawings or in their specification, wherein a single piston might control the valves for the desired purposes; and that an entirely different and unobvious construction from that shown in appellants' drawings and specification would be necessary in order to control the valves by a single piston. The board further said:

The construction shown [in appellants' specification and drawings] requires two cylinders, the piston in [one] operating one valve means and the piston in the other operating the other valve means. \* \* \*

We are cognizant of the fact that in a mechanical case an applicant may generally draw a broad claim on a single construction. However, it should be obvious to any one skilled in the art to make such modifications covered. That is not the situation here.

It is contended here by counsel for appellants that the gist of the involved invention—

lies mainly in the particular valve arrangement for controlling reversal automatically and for permitting replenishment. It is not new to shift valves by extension of piston rods in this very art. We believe it plainly follows from this that it actually is obvious how the system could be

on of only one of the two movements. Appellants have argued that it is that all reversing and delay could be performed by one piston, and that to require limit the claims to recite that role is under the motion of both would unduly limit their pro-

answer to this is that if such a claim is possible, and is part of the disclosure in this case, appellants should have described it, if they claim it. Having failed to do so, and it is not being apparent that it can be brought about, it is held to be outside the scope of the invention described herein, and appellants are not entitled to protection. (Italics quoted.)

The decision affirming the decision of the Primary Examiner, the Board of Appeals, called attention to the language of claim 4, hereinbefore referred to, and stated that the language of the claim was confusing in the drawings in appellants' specification; that appellants have not shown construction, either in their drawings or in their specification, of a single piston might control the valves for the desired purposes; and that the drawings and specification are entirely different and unobvious from that shown in appellants' drawings and specification necessary in order to control the valves by a single piston. The board said:

"The construction shown [in appellants' specification and drawings] is two cylinders, the piston in one operating one valve means and the piston in the other operating the other valve means. \* \* \*

Appellants are cognizant of the fact that in a mechanical case an applicant may draw a broad claim on a single construction. However, it should be obvious to any one skilled in the art to make such modifications covered by the claim as not the situation here.

Appellants contended here by counsel for appellants that the gist of the involved invention is—

"mainly in the particular valve mechanism for controlling reversal mechanically and for permitting the valve to shift. It is not new to shift the valve by extension of piston rods in the prior art. We believe it plainly follows from this that it actually is not new how the system could be

changed to have both valves \* \* \* controlled by a single piston rather than by both of them.

In explanation of how the apparatus might be arranged so that the valves would be properly controlled by a single piston, counsel for appellants state in their brief that it would seem to be obvious that the pilot valve, which is shown in appellants' specification and drawings as being controlled by the accumulator piston for causing normal reversal of the directional valve, might be operated by a projection from the piston in the work cylinder, or, instead of the port at the lower end of the work cylinder being closed by the work cylinder piston, it could be closed by a mechanical connection to the piston rod of the accumulator piston. Counsel's main contention is, however, that the "obviousness of various modifications [of the disclosure in appellants' specification] need not concern the tribunals of the Patent Office; that it is the duty of those tribunals 'to see that the claims are directed to novel and patentable subject matter,' and that they are 'readable on the disclosure.' Counsel also contend that 'To require an applicant to limit his claims to all obvious modifications, would either prevent him from receiving fair protection from his idea or it would cause him to multiply the disclosures of his patent to all the possible modifications that he could foresee in order that he could get broad claims,' and that appellants are entitled to claims which cover 'all devices which carry the spirit of the invention and are not shown by the prior art.'"

In support of their contentions, counsel for appellants rely upon the decisions in the following cases: In re Matzner, 20 C. C. P. A. (Patents) 799, 62 F.2d 190 [16 USPQ 25]; Ex parte Louis N. D. Williams, 2 USPQ 93; Ex parte Vickers, 53 USPQ 607.

In the Matzner case, supra, the invention involved related to radio receivers, and, among other things, disclosed means for "giving an electrical indication when the dial controlling the movable member of the condenser is in position to tune the receiver for a particular station." Claim 2, there involved, called for a dial for radio receiving sets, an electrical indicator, arranged in a normally open circuit and adapted to be rendered active only when the dial was set to tune in a station, and a circuit closing means, including a plurality of contact members "carried by the dial and disposed in circuit closing position only when the dial

is set to tune in a station." The Board of Appeals allowed certain claims, which, instead of calling for "contact members," called for "contact pins." In reversing the board as to certain of the claims there on appeal, we said [16 USPQ 27]:

"We are of the opinion that the references do not show or suggest the useful result secured by appellant, *either by the use of contact pins or in any other manner*, and we therefore hold that appellant should not be restricted to the use of contact pins, but that he is entitled to a broader protection irrespective of whether the lamp circuit is closed by means of contact pins. (Italics not quoted.)

In the Williams case, supra, the Board of Appeals, in reversing the decision of the Primary Examiner rejecting the claims there on appeal, quoted from the decision in the case of Ex parte Weaver, 1897 C. D. 165, wherein the Commissioner of Patents said [2 USPQ at 96]:

"It is the well-settled policy of this Office, however, to allow applicants to claim their invention as broadly as possible in view of the state of the art.

In the case of Ex parte Vickers, supra, the Board of Appeals, in reversing the decision of the Primary Examiner rejecting the single claim there on appeal, stated that the examiner had not rejected the claim on prior art, but had rejected it on the ground that it was broader than the applicant's disclosure because it was so drawn that it covered structures not specifically disclosed or described in the applicant's application. The board further stated [53 USPQ at 608]:

"As a general rule an applicant in a mechanical case seldom shows more than one embodiment. He is generally allowed claims, when the art permits, *which cover more than the specific embodiment shown. That practice is so general that it occurs in almost every case.* \* \* \*

Even though the present applicant has not disclosed more than one specific arrangement of the controlling valve, we see no good reason why applicant should be denied a claim that will cover other arrangements as long as the claimed invention is novel. *The examiner has not shown that any other arrangement cannot be employed and obtain the equivalent result. It is our view that the claim is not too broadly drawn and that it should be allowed.* (Italics ours.)

The Solicitor for the Patent Office states in his brief that it is too well settled to require citation of authorities that "ordinarily in a mechanical case broad claims may be supported by a disclosure of a single form of the apparatus disclosed in an application." The solicitor contends, however, that the general rule as stated is not applicable to a claim which necessarily covers an apparatus working on a principle entirely different from that shown and described in an application, which apparatus is not suggested in the application and is not obvious from the disclosure therein. In support of those views, the solicitor cites the case of *Excelsior Drum Works v. Sheip & Vandegrift*, 173 F. 312, wherein it was stated by the District Court for the Eastern District of Pennsylvania that a broad claim could not be based upon a disclosure that was specifically limited to a single device which was not given as an example or as a preferred structure. It was also the view of the solicitor that it is not obvious from appellants' specification and drawings how appellants' apparatus might be reorganized so as to operate the valves by the movement of a single piston.

We are unable to concur in the view of the solicitor that appellants' specification does not suggest that the pilot valve for effecting normal reversal of the directional valve and the other pilot valve, which is so actuated as to delay normal reversal of the directional valve for replenishment purposes, could be operated by a single piston.

We quote from appellants' specification:

An object of the present invention is to provide a mechanism which is responsive to the movement of a reciprocal member in the *pumping cylinder or the accumulator cylinder or both* which will permit the operating liquid to be taken by the pressure forming means from an independent supply and injected into the closed system to replenish the supply of operating liquid. This replenishing apparatus is intended to operate automatically and is responsive to the quantity of liquid in the system. (Italics ours.)

It is apparent from the quoted excerpt that the accumulator piston may be used not only to effect normal reversal of the directional valve, but also to delay the operation of that valve for the purpose of replenishing the system. Accordingly, it is plainly suggested in appellants' specification that the accumulator piston

alone may operate the valves for the purposes set forth in the appealed claims.

Section 4888 of the Revised Statutes (U. S. C. title 35, sec. 33) requires an applicant to explain the principle of his invention and "the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions."

In construing that section, the Supreme Court of the United States in the case of *Continental Paper Bag Company v. Eastern Paper Bag Company*, 210 U. S. 405, 418, stated:

An inventor must describe what he conceives to be the best mode, but he is not confined to that. *If this were not so most patents would be of little worth.* "The principle of the invention is a unit, and invariably the modes of its embodiment in a concrete invention may be numerous and in appearance very different from each other." Robinson on Patents, Sec. 485. (Italics not quoted.)

That case, together with other decisions to the same effect, was cited and quoted from in the case of *In re Lester Kirschbraun*, 18 C. C. P. A. (Patents) 735, 44 F.2d 675 [7 USPQ 132].

In the instant case, appellants have described what they considered to be the best mode of operation of their apparatus and also an alternative mode of operation.

It will be recalled that the Primary Examiner held that the appealed claims read on appellants' disclosure, which they obviously do. The claims were not rejected because they cover all means of producing the desired result, or because of prior art. Nor were they rejected by the examiner because they cover an inoperative structure. Accordingly, it is unnecessary for us to discuss the question raised by counsel for appellants as to whether the tribunals of the Patent Office have authority to reject a broad claim merely because it may cover one or more inoperative species.

[1] Assuming, however, without deciding, that they have such authority, we deem it not improper to say that the Board of Appeals has repeatedly held that the burden is upon the Primary Examiner to show that such a claim covers an inoperative species, and not upon the applicant to show that it does not. See *Ex parte Riszdorfer*, 34 USPQ 338; *Ex parte Johnson*, 40 USPQ 576; *Ex parte Lilienfeld*, 44 USPQ 174; *Ex parte Korpium*, 50 USPQ 224; *Ex parte Vickers*, supra. See also rules 65, 66, and 135

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of the Rules of Practice in the United States Patent Office.

In his statement to the Board of Appeals, the examiner stated that appellants had not disclosed how a single piston could operate the valves; that it was not immediately clear to him how such an apparatus could operate; and that appellants had failed to describe such a structure in their application.

In other words, as we understand the examiner's decision, he held the claims to be too broad because the applicants did not disclose in their application each specific embodiment of the invention covered by the appealed claims. That holding was affirmed by the Board of Appeals.

Obviously, the decision of the Board of Appeals, as well as that of the Primary Examiner, is not in accordance with the rule as stated in the solicitor's brief, that is, "that ordinarily in a mechanical case broad claims may be supported by a disclosure of a single form of the apparatus disclosed in an application." Nor is the board's decision in conformity with the statement contained therein that "in a mechanical case an applicant may generally draw a broad claim on a single construction."

[2] In mechanical cases, such as that here involved, broad claims may be supported by a single form of the apparatus disclosed in an applicant's application. See *In re Lester Kirschbraun*, supra; and cases therein cited; *Ex parte Kleinknecht*, 49 USPQ 680; *Ex parte Vickers*, supra.

For the reasons stated, we are of opinion that the appealed claims were improperly rejected. Accordingly, the decision of the Board of Appeals is reversed.

31 C.C.P.A. (Patents) 979

Court of Customs and Patent Appeals

KOCH v. LIEBER

Appl. No. 4793 Decided Mar. 6, 1944

PATENTS

1. Interference—Burden of proof

In interference between reissue applicants whose original applications were

copending, party second to file original and reissue is junior and must establish priority by preponderance of evidence.

2. Appeals to Court of Customs and Patent Appeals—Issues to be determined—Patent interferences

Interference—Dissolution

Primary examiner denied party's motion to dissolve interference and granted opponent's motion to add count; at final hearing, Board of Interference Examiners held that additional reasons not included in party's motion to dissolve or in his opposition to addition of count could not be considered by it; such holding was in conformity with Rule 122; on appeal, Court may consider only reasons in motion to dissolve and opposition to motion to add count.

3. Appeals to Court of Customs and Patent Appeals—Issues to be determined—Patent interferences

Where appellate tribunal of Patent Office (in instant case, Board of Interference Examiners) contrives counts broadly and holds that when so construed they are patentable over art, Court is bound by holding; patentability of such counts is for ex parte consideration by Patent Office.

4. Interference—Reduction to practice—Tests

Hearing aid device is not properly tested by holding it in position by hand rather than by head band.

Particular patents—Audiphone.

2077425, Lieber, Bone Conduction Hearing-Aid, reissue application awarded priority against application for reissue of 2144458, Koch, Bone Conduction Audiphone.

Appeal from Board of Interference Examiners of the Patent Office.

Patent interference No. 77992 between Hugh Lieber, deceased, application, Serial No. 267932, filed April 14, 1939, for reissue of Patent No. 2077425 issued April 20, 1937 on application filed Dec. 24, 1932, and Henry Koch, application, Serial No. 314564, filed Jan. 18, 1940, for reissue of Patent No. 2144458 issued Jan. 17, 1939 on application filed Aug. 31, 1935. From decision awarding priority to senior party, junior party appeals. Affirmed.

HOGUET, NEARY & CAMPBELL (WALTER H. FREE and GEORGE H. COREY of counsel), all of New York, N. Y., for appellant.

S. MICHAEL PINELES (M. C. MASSIE of